THE PILOT ARITHMETICS

BOOK ONE

STEVENS - VAN SICKLE

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THE PILOT ARITHMETICS
BOOK ONE

FOR GRADES THREE AND FOUR

BY

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PREFACE

THE main purpose in the study of arithmetic is to give children number experience that will equip them to meet life situations involving number relations. Consequently, the authors of this textbook for grades three and four have made use of the following methods:

1. The utilization of experiences that have already made a direct contribution to the child's knowledge of number relations.

2. The reconstruction of these experiences to enlarge their significance and application.

3. The creation of situations that stimulate consecutive, sustained thinking, and make new contributions to the child's experiences. These situations are closely related to life out of school and are so arranged as to encourage independent thought and investigation on the part of the pupil.

4. The formation of correct habits of response to the fundamental operations, used in both concrete and abstract situations. Here it is imperative that the teacher shall anticipate the needs of the child, and prepare him to meet his difficulties. This must be done in such a way as to remove the possibility of the child's forming a poor habit and later on, having to substitute a better one.

As stated above, the book is for pupils doing third-grade and fourth-grade work. It is to be put into their hands at the beginning of the third grade, and the first part (pages 13–42) is to be used in reviewing the work of the second grade.

These review pages follow closely the order of the work in the second grade, as outlined (pages 33–110) in the *Teachers' Manual* for use with this text, and cover the subject matter required before taking up the new topics of the third year.

Not only have the authors stressed the connection between the work in arithmetic and the everyday interests of the child, but they have also graded that work with great care and thoroughness. In the latter part of the book (pages 225–272) has been placed an unusual variety and quantity of drill material, for use in strengthening the desired habits of response to the fundamentals of arithmetic.

As this is a book for children, its explanations as to methods of procedure are in language that children can easily understand. However, in the very important matter of forming correct habits in the fundamental facts and processes of arithmetic, the child cannot safely be left to his own interpretation of what he reads. He needs not only a good model, but leadership to see that he follows this model exactly until correct habits are firmly established.

The best results will be obtained from the use of this text if the teacher studies the *Manual* and presents each new subject in class lessons before expecting children to undertake the corresponding work in the text.

The authors desire to acknowledge the very valuable assistance given in the preparation of the manuscript by Mr. Harry B. Marsh, Head of the Mathematics Department, The Technical High School, Springfield, Mass.; Miss Mary O. Pottenger, Supervisor of Grades I–III, Springfield, Mass.; Dr. Albert Leonard, Superintendent of Schools, New Rochelle, N. Y.; and the constructive criticisms of Mr. C. Edward Fisher, Superintendent of Schools, Braintree, Mass.; and of Prof. G. M. Wilson of Iowa State College, who reviewed and criticized the entire manuscript.

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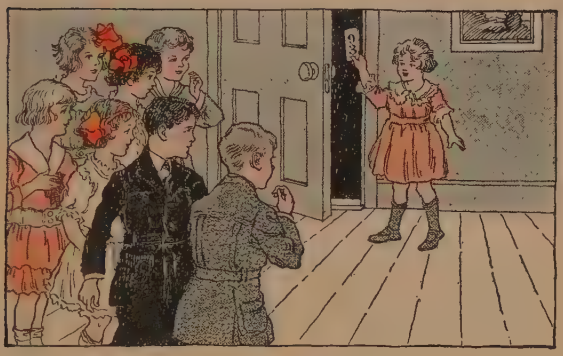
THE PILOT ARITHMETICS

BOOK ONE

THIRD GRADE

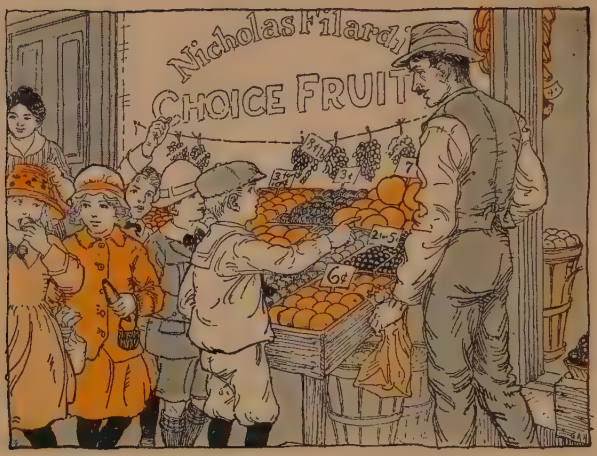


Fruit Basket

These children are playing a game. Do you remember the number cards you learned last year well enough to play it?

This is the way to play this game.

Divide the class into two groups. Choose one child to hold the cards. The children in the groups take turns in answering the combinations on the cards that are held up. If the answer is given correctly, the card is given to the leader of that group. This counts one piece of fruit in the basket. If the answer is given incorrectly, the other group takes its turn. At the end of the period the group having the most fruit wins the game.



At the Fruit Stand

In this price list ¢ means *cent* or *cents*.

apple . . .	3¢	melon . . .	9¢
orange . . .	6¢	grapefruit . .	7¢
banana . . .	4¢	peaches . . .	3 for 10¢
plums . . .	2 for 5¢	grapes . . .	8¢ a pound

These children are buying fruit for a picnic.
Tell how much each child spends.

William buys an orange and three peaches.
Louise buys a banana and two plums.
Anna buys two apples and a banana.
Fred buys a pound of grapes and one apple.
Frank buys two bananas and two plums.
James buys three peaches and an apple.
Katherine buys a pound of grapes and a melon.
Ned buys an apple, an orange, and a pound of grapes.

Dorothy buys an orange and two plums.
Margaret buys half a dozen peaches.
Louis buys a pound of grapes and two plums.
Henry buys half a dozen plums.
Thomas buys an apple, an orange, and a banana.
Ruth buys three apples and two plums.
Marjorie buys two apples and a pound of grapes.
John buys three peaches and a grapefruit.
Marian buys an apple, a banana, and a pound of grapes.
Sarah buys three peaches and two plums.

Tell two kinds of fruit you would like to have and how much it will cost.

ADDITION FACTS

Here are the addition facts. The easy ones come last. In addition examples, the answer is called the *sum*.

Practice until you can tell the sums at sight.

3 4 6 3 6	7 6 4 9 5	9 9 6 8 7
8 6 8 9 7	9 5 8 4 7	5 8 9 5 8
8 5 9 8 8	5 7 4 5 9	7 9 8 6 8
7 8 6 4 9	9 5 9 6 3	6 7 3 4 6
7 3 6 1 6	4 6 2 1 2	9 9 8 10 3
3 4 2 7 0	7 3 5 9 7	2 9 8 8 6
5 3 6 2 7	9 5 0 7 10	7 2 4 4 5
0 7 6 9 2	1 2 0 4 6	7 6 3 4 5

4	1	2	2	8
5	3	4	8	0

10	1	3	10	8
2	5	5	4	1

9	7	2	10	1
0	1	3	3	0

3	5	1	3	10
2	3	8	0	5

4	8	6	3	4
1	2	1	3	2

10	2	5	7	10
9	1	4	0	1

10	4	1	2	5
7	0	6	2	1

1	1	3	1	2
1	2	1	4	0

Fruit Basket Upset

The class may be divided into three or more groups each with a leader who knows the number facts. Each leader holds a set of cards. All groups begin to play at a given signal. The leader gives the cards to the children in his group as they, in turn, respond with correct answers. The teacher at any time may say, "Fruit Basket Upset." The children stop and give all the cards to the score-keeper, who counts them and returns them to the leader. The group which has the highest number of cards wins one point. At the close of the period, the group which has scored the highest number of points wins the game.

SUBTRACTION FACTS

Tell what number you must put with the smaller one to make the larger one. Practice until you can say them all at sight.

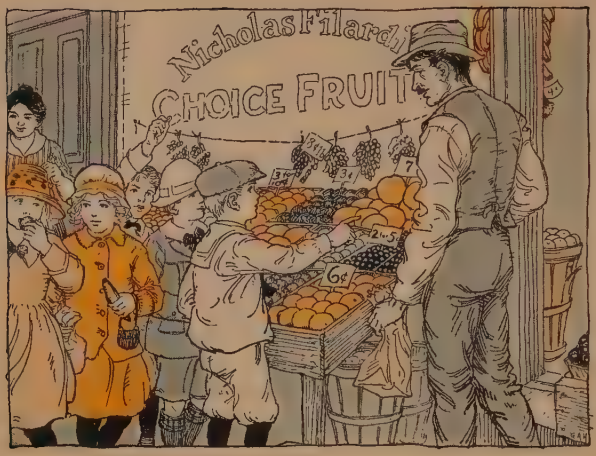
The sign for subtraction is −. It is read *minus*.

8	10	10	4
−5	−4	−1	−4

12	2	10
−8	−0	−3

7	8	5	9
−3	−6	−1	−2

9	16	13	4	7	12	4	9	10
−8	−8	−5	−3	−1	−3	−0	−4	−2
6	9	7	11	9	6	12	8	12
−2	−6	−2	−2	−3	−1	−9	−2	−5
3	11	14	16	13	14	11	9	9
−3	−4	−7	−10	−4	−5	−3	−7	−9
9	9	11	2	17	14	8	16	8
−5	−1	−6	−1	−8	−9	−4	−7	−0
13	12	14	10	16	13	14	15	7
−6	−4	−6	−10	−9	−10	−10	−7	−5
15	12	7	12	13	18	10	11	13
−6	−7	−4	−6	−7	−9	−5	−5	−8
10	15	1	10	14	15	10	13	17
−6	−8	−1	−7	−8	−9	−8	−9	−9
10	11	0	18	11	19	11	1	17
−9	−7	−0	−10	−10	−10	−9	−0	−10
11	15	12	9	8	6	6	3	5
−8	−10	−10	−0	−7	−6	−3	−0	−3
5	4	3	8	5	6	6	6	8
−5	−1	−2	−8	−2	−0	−4	−5	−3
2	7	7	8	7	5	5	3	4
−2	−6	−0	−1	−7	−4	−0	−1	−2



Buying Fruit

Price List

apple . . .	3¢	melon . . .	9¢
orange . . .	6¢	grapefruit . .	7¢
banana . . .	4¢	peaches . . .	3 for 10¢
plums . . .	2 for 5¢	grapes . . .	8¢ a pound

Find your own name or play you are one of these children who bought some fruit.

Think how to fill the blanks; then read your part.

ELLEN: I had 8 cents and bought an orange. I had —— left.

MABEL: I had 15 cents and bought a grapefruit. I had —— left.

JOSEPH: I had 11 cents and bought an orange. I had —— left.

SAM: I had 13 cents and bought a melon. I had —— left.

ALICE: I had 14 cents and bought an orange. I had —— left.

ALEXANDER: I had 15 cents and bought a pound of grapes. I had —— left.

ROBERT: I had 12 cents and bought a banana. I had —— left.

EDWIN: I had 19 cents and bought three peaches. I had —— left.

NICK: I had 17 cents and bought a melon. I had —— left.

ANDREW: I had 16 cents and bought a grapefruit. I had —— left.

JULIA: I had 9 cents and bought two plums. I had —— left.

JACK: I had 16 cents and bought an orange. I had —— left.

TOM: I had a dime and bought a banana. I had —— left.

JAMES: I had a nickel and bought two plums. I had —— left.

HAROLD: I had 17 cents and bought two bananas. I had —— left.

ROSE: I had 9 cents and bought a banana. I had —— left.

TEDDY: I had 18 cents and bought a melon. I had —— left.

Look at the price list, tell how much money you have and what you wish to buy. Then ask some other child how much money you should have left.

PROBLEMS ABOUT OUR SCHOOL

Read each problem silently; then answer the question in a complete sentence.

1. We have 2 vases and enough flowers for 5 bouquets. How many more vases do we need?

2. In one vase are 6 purple asters and 5 white asters. How many asters are in the bouquet?

3. In another vase are 9 pink asters and 7 white asters. How many asters are in that bouquet?

4. Our flag has 7 red stripes and 6 white stripes. How many stripes are on the flag?

5. Five of the children were playing a number game. Four more children went to play with them. How many were playing then?

6. Two of these children missed and left the group to study their cards. How many kept on playing?

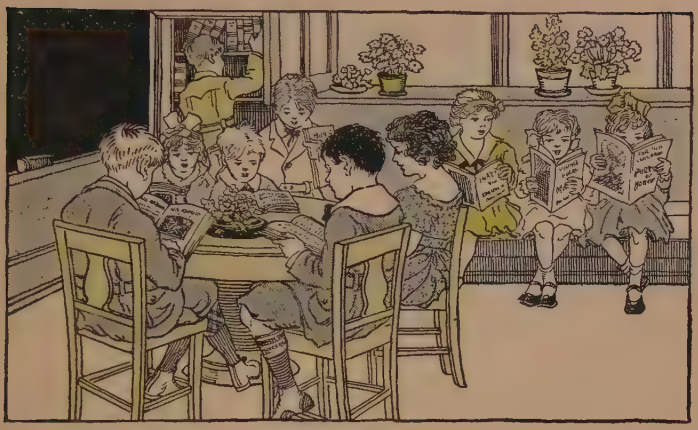
7. There are 3 pictures in the front of the room and 4 more in other places. How many pictures are in the room?

8. The teacher has 15 autumn pictures. She put up 7. How many did she put away to be used later?

9. There are 3 fish in our fish-globe. May's mother is going to give us 5 more. How many fish shall we have then?

10. Jack brought 6 cents to buy fish-food. Max brought 2 cents. How much money did both bring?

11. If fish-food costs 10 cents a package, how much more money do they need?



12. There is room for 8 chairs in our library corner. We have 5 chairs. How many more do we need?

13. There are 5 library books in use and 8 on the shelf. How many library books have we?

14. Alice has read 4 of our books and Grace has read 5 of them. How many have both read?

15. Six children are reading at the table. There is room for 8 children. How many more may go to the table?

16. Lucy read 6 pages of her book on Monday and 5 pages on Tuesday. How many pages has she read?

17. A dish of pansies is on the table. Six pansies are yellow and 8 pansies are black. How many pansies are in the dish?

18. A plant has 6 blossoms and 4 buds. When the buds open how many blossoms will there be?

19. James watered 3 of our plants before school and 4 more at recess. How many plants did he water?

OTHER PROBLEMS TO THINK ABOUT AND ANSWER

1. James went to the store for a dozen eggs. His mother cooked 3 of them for breakfast. How many eggs were left from the dozen?

2. How much must Mary pay for a 9-cent loaf of bread and a 6-cent box of crackers?

3. Mary paid for the bread and crackers. She gave the grocer just enough money. What coins might she have given him?

4. How much must you put with 9 to make 14?

5. Rose practices her music lesson 9 hours each week. She has already practiced 4 hours. How many more hours has she to practice this week?

6. You have 7 apples and wish to give 1 to each of 16 children. How many more apples must you get?

7. Ruth saved 18 cents, half of which she gave to her sister. How much money did she have then?

8. How many bananas are left from a dozen after 5 have been eaten?

9. There were 12 large trees on our street. After 3 were cut down, how many were left standing?

10. Laura had 15 cents when she went to the store. She bought a 5-cent chocolate bar and a 3-cent pencil. How much money did she spend? How much money did she have left?

11. On Tom's birthday his mother invited 6 boys and 8 girls to go with them to the moving pictures. How many tickets did she buy?

SUBTRACTION

In the second grade you learned to do subtraction examples. See if you remember these different kinds.

A.

389
−324
65

In this example we think:
"4 and 5 are 9." Write 5.
"2 and 6 are 8." Write 6.
"3 and 0 are 3." Do not write 0 at the beginning of a number.

B.

295
−138
157

In this example, as 8 is more than 5, we think:
"8 and 7 are 15." Write 7 and carry 1 to 3.
"4 and 5 are 9." Write 5.
"1 and 1 are 2." Write 1.

C.

924
−579
345

In this example, as 9 is more than 4, we think:
"9 and 5 are 14." Write 5 and carry 1 to 7.
Now, as 8 is more than 2, we think:
"8 and 4 are 12." Write 4 and carry 1 to 5.
"6 and 3 are 9." Write 3.

D.

560
−71
489

In this example we think:
"1 and 9 are 10." Write 9 and carry 1 to 7.
"8 and 8 are 16." Write 8 and carry 1.
"1 and 4 are 5." Write 4.

In subtraction examples, the answer is called the *difference*. Find the difference in each of these examples.

1.	69	48	38	29	78	58
	−26	−27	−15	−9	−22	−21
2.	82	53	42	65	48	32
	−26	−27	−13	−29	−19	−27

3.	44	49	38	22	39	78
	−27	−26	−16	−14	−26	−27
4.	99	53	42	89	62	81
	−24	−26	−17	−23	−27	−36
5.	627	632	543	985	365	
	−319	−467	−268	−238	−197	
6.	633	921	835	632	872	
	−287	−49	−78	−49	−96	

7.	521 flags	482 desks	527 pages
	−239 flags	−79 desks	−269 pages
8.	$729	630 pounds	332 quarts
	−254	−462 pounds	−167 quarts

9. Make a subtraction problem about 40 men and 25 men. Write it and solve it.

10. Make a subtraction problem about:

36 children and 8 children
27 fish and 12 fish
40 dogs and 16 dogs

SUBTRACTION DRILL EXAMPLES[1]

Group **1.**

a	*b*	*c*	*d*	*e*
684	723	982	6,079	2,073
−149	−169	−49	−1,296	−985

[1] *To the teacher:* Similar examples for drill in subtraction have been placed in the back of the book, pp. 225-229. See *Manual*, pp. 68, 69, 113, 114, for suggestions in regard to their use.

Group **2.**

a	*b*	*c*	*d*	*e*
593	807	209	8,243	4,027
−264	−169	−73	−2,697	−1,938

Group **3.**

a	*b*	*c*	*d*	*e*
246	500	402	3,624	6,073
−109	−178	−89	−1,976	−1,829

Group **4.**

a	*b*	*c*	*d*	*e*
773	601	803	9,300	7,362
−164	−182	−269	−1,295	−1,979

Group **5.**

a	*b*	*c*	*d*	*e*
892	622	803	6,029	4,093
−148	−149	−79	−1,826	−897

Group **6.**

a	*b*	*c*	*d*	*e*
771	703	603	9,826	3,294
−124	−149	−85	−1,975	−2,797

Group **7.**

a	*b*	*c*	*d*	*e*
842	982	624	3,297	8,000
−109	−297	−98	−1,696	−1,965

Group **8.**

a	*b*	*c*	*d*	*e*
975	421	329	4,623	4,002
−239	−169	−64	−1,932	−1,693

ADDITION

Simple Column Addition

Add. — Begin at the bottom of each column. Say, "7, 9," in the first column; "9, 10," in the second; etc.

1.	2	1	2	1	0	1	1	6	0	9	6
	3	6	5	9	9	8	6	2	5	4	2
	4	3	3	4	7	3	9	8	7	3	7
2.	8	9	9	7	5	4	5	1	5	7	2
	7	3	3	8	3	3	6	7	5	2	9
	3	4	2	2	6	7	4	9	4	4	0
3.	2	6	7	9	1	0	1	5	1	7	1
	1	3	4	0	6	8	6	0	9	9	7
	3	3	3	1	7	3	0	8	1	0	3
	4	3	2	3	2	5	5	0	3	1	6
4.	1	1	3	5	1	9	1	7	2	0	1
	6	0	3	5	5	2	0	1	2	1	1
	2	8	3	5	2	2	7	0	1	9	9
	2	4	3	5	2	3	2	3	4	1	2
	6	5	1	5	6	3	7	3	2	4	6
5.	1	1	8	0	1	8	1	1	2	2	1
	7	7	2	9	5	5	1	6	2	3	8
	4	2	3	2	3	3	9	5	2	3	0
	2	4	1	3	2	0	7	4	2	0	1
	3	2	3	4	5	1	2	1	2	3	7

Series Work or Adding by Endings

I. Sum of Endings Less than 10

Notice the endings. Begin at the bottom. Add upward. Give the sum.

5	5	5	5	5	5	5	5
4	14	24	34	44	54	64	74
9	19	29	39	49	59	69	79

Complete the following. Add.

1.	2	2	2	2	2	2	2	2	2
	3	13	23	—	—	—	—	—	—
2.	5	5	5	5	5	5	5	5	5
	2	12	22	—	—	—	—	—	—
3.	4	4	4	4	4	4	4	4	4
	3	13	—	—	—	—	—	—	—

Add.

1.	6	5	4	6	7	3	2	1	9
	12	23	12	31	42	73	26	30	40
2.	5	2	6	2	4	2	4	3	7
	42	83	71	66	32	57	23	32	42
3.	3	6	5	6	2	1	0	2	6
	15	32	11	93	24	43	34	17	23
4.	8	2	4	5	6	7	2	3	7
	31	62	54	12	23	11	16	24	32

II. Sum of Endings 10 or More

9	9	9	9	9	9	9	9	9
4	14	24	34	44	54	64	74	84
13	23	33	43	53	63	73	83	93

Complete the following. Add.

1.	6	6	6	6	6	6	6	6	6
	8	18	28	38					
2.	3	3	3	3	3	3	3	3	3
	9	19							
3.	4	4	4	4	4	4	4	4	4
	6	16							
4.	8	8	8	8	8	8	8	8	8
	9								

Add.

1.	5	8	6		7	3	5		8	9	9
	19	27	29		14	99	87		35	26	69
2.	7	8	6		8	2	3		6	9	7
	73	24	69		54	39	27		17	65	39
3.	5	2	6		7	9	3		4	2	6
	28	49	34		68	26	58		19	28	38
4.	6	7	8		9	5	2		3	4	9
	16	37	28		49	25	58		69	28	34

Practice in Adding by Endings

Look at the endings and add.

1.	5	2	9		4	6	5		8	3	4	
	16	23	58		23	12	39		65	23	49	
2.	3	2	7		5	4	9		5	2	8	
	19	26	29		38	42	17		29	37	53	
3.	5	6	9		5	2	3		6	7	5	
	15	26	29		38	39	49		29	38	39	
4.	6	8	5		9	7	6		9	1	0	
	13	27	44		18	29	37		22	38	25	
5.	5	2	8		9	7	8		8	3	6	
	19	28	33		37	25	44		52	29	38	

2	6	2	6
23	19	33	
6	8	9	7
28	19	37	
6	7	8	
12	39	23	
8	7	6	
69	33	29	

A Trip to the Grocery Store

Price List

Eggs	46¢ a dozen	Soap	6¢ a cake
Butter	48¢ a pound	Matches	5¢ a box
Cheese	15¢ a pound	Crackers	8¢ a box
Milk	17¢ a quart	Rice	7¢ a pound
Jam	29¢ a jar	Bread	9¢ a loaf
Soup	13¢ a can	Yeast Cake	3¢ each
Coffee	34¢ a pound	Cocoa	10¢ a can

Choose one thing from each column of this price list. Tell how much you will pay for both articles.

Applying Series Work

Think of the endings. In the first example, say, "13, 19."

1.	6	5	3		7	8	6		7	8	9		6	7	9
	4	7	9		9	6	9		4	6	7		7	9	3
	9	8	4		2	4	3		2	9	5		8	4	8
2.	8	9	6		8	7	4		8	3	3		7	3	8
	7	6	8		2	6	2		6	9	7		9	8	2
	9	4	3		9	4	3		9	4	2		6	4	9
3.	8	7	2		9	8	8		2	5	6		9	7	8
	8	9	2		0	9	3		6	9	7		3	8	9
	6	4	3		6	7	4		9	8	3		7	6	5
4.	2	7	6		4	6	9		9	7	6		2	7	3
	9	8	9		9	9	5		5	8	9		9	9	8
	9	6	7		9	8	3		6	2	4		3	4	9
5.	9	9	9		8	6	7		4	9	3		3	4	3
	2	9	6		8	9	9		9	4	9		4	7	6
	6	4	8		8	4	9		6	4	7		9	8	7

Adding Longer Columns

In the first column, say, "10, 16, 19."

1.	3	7	9		3	7	2		7	6	9		6	9	5
	6	8	6		2	2	3		9	2	3		2	8	9
	2	9	2		4	7	4		4	8	4		3	2	2
	8	5	7		8	9	5		6	3	9		4	7	8

2.

8	9	6	9	4	9	9	4	9	9	9	4
2	8	2	3	9	8	9	9	3	7	3	9
3	7	8	2	8	3	8	8	8	6	8	2
5	3	5	8	7	6	8	9	5	9	5	9

3.

7	6	5	9	5	2	8	5	3	6	5	2
4	4	3	2	2	4	2	2	2	9	4	8
3	2	9	6	7	6	6	7	9	8	9	6
2	7	0	8	9	3	4	9	7	2	3	9

4.

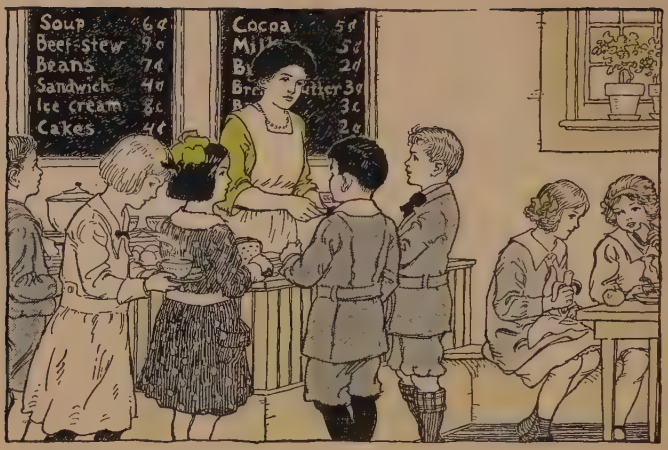
8	5	9	9	3	2	2	3	2	6	9	9
3	9	9	2	9	8	4	2	8	9	2	4
7	2	2	6	4	6	9	5	7	8	9	9
9	8	7	8	2	7	9	9	9	5	3	8
6	3	9	5	7	3	8	4	3	8	6	7

Time yourself by the clock, on each group of examples.

Add each column up and then down to be sure you are correct.

3	2	6	4	9	9	5	8	7
2	8	2	9	8	8	4	7	2
9	9	7	3	7	3	9	5	6
6	7	9	2	3	6	8	6	8
8	3	3	5	2	9	3	9	9

9	6	2	9	2	3	9	9	9
3	2	8	2	7	9	3	8	2
2	8	7	4	6	6	2	7	8
7	5	3	6	9	8	9	5	5
8	7	6	8	7	2	8	9	7
5	6	9	3	5	4	7	6	9



Buying Lunches

Menu for Monday

Soup	6¢	Cocoa	5¢
Beef-stew	9¢	Milk	5¢
Beans	7¢	Bun	2¢
Sandwich	4¢	Bread and butter	3¢
Ice cream	8¢	Banana	4¢
Cakes	4¢	Apple	5¢

These children buy lunches at school. Find the cost of each one's lunch.

Ruth:

- Soup . . . 6¢
- Beans . . . 7¢
- Bun . . . 2¢
- Milk . . . 5¢

Anna:

- Beef-stew
- Bread and butter
- Ice cream
- Cakes

Tom:
- Beans
- Cocoa
- 2 buns
- Sandwich

Billy:
- Milk
- 2 sandwiches
- Ice cream
- Cakes

Ralph:
- Beef-stew
- Bread and butter
- Banana
- Milk

Emma:
- Beans
- Cocoa
- Bun
- Apple

1. Play that you have 18 cents to spend for your lunch. What would you buy? Plan as many 18-cent lunches as you can.

2. Plan a 25-cent lunch. A 20-cent lunch. A 15-cent lunch.

3. James always has a sandwich and a glass of milk for his lunch. How much does he spend each week for his lunch at school?

4. Louise eats a banana and an apple each day for her lunch. Find how much she spends each week.

5. Sara brings sandwiches from home and buys a cup of cocoa each day. How much does she spend in a week?

6. Which one spent less money for lunch:
   Ruth or Anna? How much less?
   Tom or Billy? How much less?
   Ralph or Emma? How much less?

7. Choose from the list five things which you like and tell how much that lunch costs.

Planning Lunches

Divide the class into four groups. Let each group choose a leader and plan a menu for one day.

All groups must remember that the food chosen must be wholesome and simple so that it can be easily prepared.

Certain things, such as bread and milk, must be on each menu.

The prices must be low so that we need not charge more than 9 cents for any article.

Find, by asking people who sell them, how much to charge for all things on your list.

Each group should work independently and, when the menu is finished, report to the class. The menu may be used for ordering luncheon for one day.

Group One — Menu for Tuesday

The leader of the group may write the menu on the blackboard. The class may decide whether or not the menu is a good one and whether the prices are reasonable.

Group Two — Menu for Wednesday

Each child has 25 cents to spend. What shall he order from today's menu?

Group Three — Menu for Thursday

Each child has 28 cents to spend. What shall he order?

Group Four — Menu for Friday

Order anything you like. How much will it cost?

ADDITION DRILL EXAMPLES[1]

In the second grade you learned to work addition examples containing two and three columns of figures. See if you remember how to do it.

A.

82
63
55
23
78
301

In this example look at the right-hand column, begin at the bottom, and think:
"11, 16, 19, 21." Write 1 under 8 and carry 2 to add to 7 in the next column.
Then think:
"9, 11, 16, 22, 30." Write 30 in the correct place.

B.

456
27
673
4
535
1,695

In this example think:
"9, 12, 19, 25." Write 5 and carry 2.
Then think:
"5, 12, 14, 19." Write 9 and carry 1.
Then think:
"6, 12, 16." Write 16 in the correct place."

Group 1.

a	*b*	*c*	*d*	*e*
97	36	94	694	987
63	8	26	127	46
29	73	8	385	326
36	29	39	649	493
24	41	46	382	782

[1] *To the teacher:* Similar drill examples have been placed in the back of the book, pp. 230–239. See *Manual*, pp. 86, 88, 113, 114, for suggestions in regard to their use.

Group **2.**

a	*b*	*c*	*d*	*e*
63	93	83	793	888
25	82	92	827	97
49	7	75	549	383
83	10	58	826	572
26	39	39	385	69

Group **3.**

a	*b*	*c*	*d*	*e*
58	99	22	485	623
17	7	86	296	487
29	23	93	327	296
33	48	7	784	380
40	35	14	293	405

Group **4.**

a	*b*	*c*	*d*	*e*
92	66	59	234	697
83	73	6	687	38
64	84	8	975	496
27	9	13	848	28
46	8	29	493	867

Group **5.**

a	*b*	*c*	*d*	*e*
34	45	17	209	386
26	63	16	364	49
39	79	3	824	3
71	4	398	739	70
87	31	184	653	604

Hopscotch

To play the game, draw on the blackboard the hopscotch lines and number each square.

8	2	7
3	6	1
5	4	9

Begin at any square, pointing to the number. Point then to the next number in any direction, adding as you point. Each child may keep on hopping from one square to another, adding each new number to his sum until he makes an error. He keeps his own score and when his turn comes again, begins where he left off. The child having the highest score at the end of the period wins the game.

This game may be played by dividing the class into groups. The scores are kept on the blackboard, each child's score being added to the score for his group. The group with the highest score wins the game.

The lines may be drawn upon the floor with crayon and the children hop from one to another, playing as in the blackboard game.

Grandfather's Birthday Party

Grandfather and Grandmother invited all their grandchildren to the country for Grandfather's birthday.

1. Six boys and 4 girls went. How many children were at the party?

2. Seven of the children went in automobiles and all the others went by train. How many went by train?

3. The pond on the farm was frozen. Four of the children went skating. Nine other children came to skate. How many children were on the pond?

4. Robert, Jane, and Alice took a car and went 6 miles to town on an errand. How many miles did they ride?

5. Jane bought Grandmother a box of candied ginger. She paid 42 cents for it, and gave the man a 50-cent piece. How much change did the man give Jane?

6. They got twelve 2-cent stamps for Grandfather. How much did the stamps cost?

7. They mailed a parcel on which they paid 18 cents for parcel post, 5 cents for insurance, and 10 cents for a special-delivery stamp. How much did they pay?

8. James and Harold carried logs for the fireplaces while the others were gone. They carried 8 logs to one room and 5 logs to another. How many logs did they carry?

9. Ray went to the cellar for apples. He brought up 15 apples. Each of the three boys at home ate two. How many did they eat? How many apples were left?

10. In a basket of fruit there were 8 oranges, 6 bananas, 7 pears, and 9 apples. How many pieces of fruit were there?

11. Grandmother had a basket of yellow and white flowers on the dinner table. Eight were yellow and 14 were white. How many flowers were in the basket?

12. Grandmother had two turkeys. Before they were dressed one weighed 18 pounds and the other 12 pounds. How many pounds did both weigh?

13. How much did the turkeys weigh after they were dressed, if they lost 6 pounds in dressing?

14. Two quarts of cranberries were used for jelly. Each quart made 9 molds. How many molds of jelly did the 2 quarts make?

TEST PROBLEMS

(Without Pencil)

Read each problem silently. By answering the question which is asked, show that you understand what you read.

1. Louise spent 4 cents for an orange, 2 cents for an apple, 5 cents for a pencil, and 1 cent for an eraser. How much did all cost?

2. My pencil box cost 20 cents. Mary wants one like it, and she has 8 cents. How much more money does she need?

3. In Mary's box are 8 red pencils, 7 blue ones, and 4 black ones. How many pencils has she?

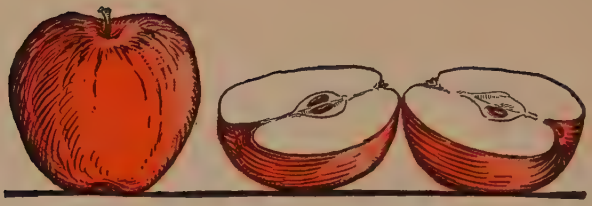
4. Frank has 9 cents. Charles has 14 cents more than Frank. How much money has Charles?

5. Ethel went to the store for her mother. She paid 6 cents for soap, 9 cents for bread, 8 cents for apples, and 2 cents for a yeast cake. How much money did she spend?

6. How much money did Ethel receive in change if she handed the grocer a 50-cent piece?

7. Julia wishes to buy a 50-cent tennis ball. She has 3 dimes. How much more money does she need?

8. Harry sold 16 papers on Monday, 9 papers on Tuesday, and 8 papers on Wednesday. How many did he sell in the three days?



HALVES

1. Before any cutting was done, how many whole apples were in this picture?

2. Into how many equal parts was one apple cut?

3. What is one of these parts called?

4. One whole apple is equal to how many half apples?

5. John had a stick of candy. He broke it and gave his brother as much as he kept. What part of the candy did each boy have?

6. If anything is divided into two equal parts, what is one of these parts called?

7. How many half dollars can Jack get for his dollar bill?

8. Julia had a yard of cloth. She used one half of it to make her doll a dress. What part of her cloth was left?

9. Anna's sash is 2 yards long and her little sister's is half as long. How long is her sister's sash?

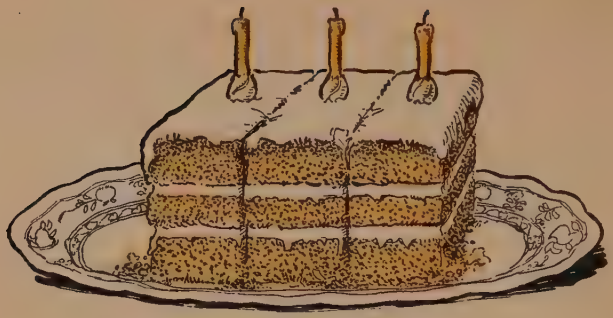
10. How much is one half of four hours?

11. Louise practices her music a half-hour each morning. How long does she practice in two mornings?

12. Four children each ate half an orange for breakfast. How many oranges were eaten?

FOURTHS OR QUARTERS

1. Into how many equal parts is this pie divided?
2. How many people could each have one piece?
3. When anything is divided into four equal parts, what is one of the parts called?
4. Suppose Mother, David, and Mabel each had one piece of this pie. What part would be left for Father?
5. Which is more, one fourth or one half?
6. Compare two fourths and one half.
7. Mother cut two pies into halves. How many pieces were there?
8. If she had cut these same pies into fourths how many pieces would there have been?
9. How many halves are there in one whole orange?
10. How many fourths are there in one whole pie?
11. How much is one half and one fourth?
12. How much is three fourths and one fourth?
13. After Robert ate one fourth of his cereal, what part of it had he left?
14. How much is one quarter or one fourth of a dollar?
15. How many fourths make one half?
16. How many oranges are one fourth of a dozen?



THIRDS

1. Three children are going to eat this cake. Into how many equal pieces has Mother cut it?

2. When anything is divided into three equal parts, what is each of the parts called?

3. How many thirds are there in one apple?

4. If each of 3 boys should eat one third of an apple how many whole apples would be needed?

5. Which is more, one third of an orange or one half of an orange?

6. Compare one third and two thirds of a watermelon.

7. Compare one third and one fourth of a pie.

8. One third of a muskmelon was bad. What part of it was good?

9. How many thirds are there in any whole thing? How many fourths are there in any whole thing?

10. John has done two thirds of his home work. What part of his work is still to be done?

11. One third of the children in our class are boys. What part of the class are girls?

MULTIPLICATION

By 2

Add.

0	1	2	3	4	5	6	7	8	9	10
0	1	2	3	4	5	6	7	8	9	10

Multiply. Think, "2 times zero is zero; 2 times 1 is 2."

0	1	2	3	4	5	6	7	8	9	10
2	2	2	2	2	2	2	2	2	2	2

Add.

2	2	2	2	2	2	2	2	2	2
	2	2	2	2	2	2	2	2	2
		2	2	2	2	2	2	2	2
			2	2	2	2	2	2	2
				2	2	2	2	2	2
					2	2	2	2	2
						2	2	2	2
							2	2	2
								2	2
									2

Multiply. Think, "1 times 2 is 2; 2 times 2 is 4."

2	2	2	2	2	2	2	2	2	2
1	2	3	4	5	6	7	8	9	10

See how quickly you can give these answers in multiplication. Think, "2 times 1; 2 times 9."

1	9	8	7	6	4	5	3	2	0
2	2	2	2	2	2	2	2	2	2

× is the sign of multiplication. It is here read *times*. In multiplication examples, the answer is called the *product*.

Read these examples and tell the products. Think, "7 times 2; 9 times 2."

2	2	2	2	2	2	2	2	2	2
×7	×9	×6	×1	×2	×5	×4	×3	×10	×8

We do not always write the sign. If we say "Multiply," you must think the sign.

Multiplication is sometimes expressed in this way: $2\times6=12$. This is read: "Two times six equals twelve."

Read and give products; call ×, *times* and =, *equals*.

$2\times6=12$	$4\times2=$	$2\times5=$	$7\times2=$
$9\times2=$	$2\times7=$	$8\times2=$	$2\times9=$

Look at these, multiply, and add 1. Tell only the product and the sum; as, "12, 13."

6	9	8	4	2	7	0	2	2
2	2	2	2	9	2	2	4	5
3	0	5	2	2	2	1	2	10
2	1	2	8	7	0	2	2	2
1	9	1	7	6	3	5	2	4
1	1	8	1	1	1	1	1	1

1. Robert has 4 apples; Mary has two times as many and 1 more. How many apples has Mary?

2. Lucy bought a 2-cent stamp for each of 5 letters. How much did they cost?

Multiplying by 2

When you know

6	4	9	0	5	3	7	1	2	8
2	2	2	2	2	2	2	2	2	2
12	8	18	0	10	6	14	2	4	16

and can add 1 to each product, if necessary, you are ready to multiply any number by 2.

The number by which we multiply is called the *multiplier*. This is the way to multiply by 2.

A.

$$\begin{array}{r} 84 \\ \times 2 \\ \hline 168 \end{array}$$

Think:
"2 times 4 is 8." Write 8 under 2.
"2 times 8 is 16." Write 16 in the correct place.

B.

$$\begin{array}{r} 87 \\ \times 2 \\ \hline 174 \end{array}$$

In this example think:
"2 times 7 is 14." Write 4, and remember 1.
Then think:
"2 times 8 is 16. 16 and the 1 which we remember, are 17." Write 17 in the correct place.

Copy and multiply.

1. 42 ×2	**2.** 73 ×2	**3.** 54 ×2	**4.** 69 ×2	**5.** 78 ×2	**6.** 45 ×2
7. 609 ×2	**8.** 758 ×2	**9.** 874 ×2	**10.** 517 ×2	**11.** 325 ×2	**12.** 839 ×2

1. How many wheels are needed for 2 automobiles?

2. Rose had two bags with 6 crackers in each bag. How many crackers had she?

MULTIPLICATION

By 3

Add.

0	1	2	3	4	5	6	7	8	9	10
0	1	2	3	4	5	6	7	8	9	10
0	1	2	3	4	5	6	7	8	9	10

Multiply. Think, "3 times zero is zero; 3 times 1 is 3."

0	1	2	3	4	5	6	7	8	9	10
3	3	3	3	3	3	3	3	3	3	3

Add.

3	3	3	3	3	3	3	3	3	3
	3	3	3	3	3	3	3	3	3
		3	3	3	3	3	3	3	3
			3	3	3	3	3	3	3
				3	3	3	3	3	3
					3	3	3	3	3
						3	3	3	3
							3	3	3
								3	3
									3

Multiply. Think, "1 times 3 is 3; 2 times 3 is 6."

3	3	3	3	3	3	3	3	3	3
1	2	3	4	5	6	7	8	9	10
3	9	3	4	7	6	8	2	1	0
6	3	8	3	3	3	3	3	3	3
3	3	3	10	3	5	3	3	3	0
7	4	9	3	3	3	5	2	1	2

Multiply and add 1. Then multiply and add 2.
Speak the *product* and *sum* only; as, "6, 7."

2 8 6	3 4 9	0 3 3
3 3 3	8 3 3	3 6 4
7 3 5	1 0 6	5 3 9
3 3 3	3 2 3	2 2 3

1. Arthur is filling a box with small square blocks. He puts in 3 rows with 6 blocks in a row. How many blocks does the box hold?

2. Jack's rabbit eats 3 carrots every day. How many does he need in a week?

3. Make a multiplication problem about 3×8 chickens.

Multiplying by 3

You must know

3	4	5	6	7	8	9
3	3	3	3	3	3	3
9	12	15	18	21	24	27

and be able to add 1 or 2 to each product.
Then you can multiply any number by 3.

Multiply.

1. 27 ×3	2. 49 ×3	3. 78 ×3	4. 506 ×3	5. 950 ×3
6. 893 ×3	7. 746 ×3	8. 419 ×3	9. 273 ×3	10. 469 ×3

MULTIPLICATION

By 4

Add.

0	1	2	3	4	5	6	7	8	9	10
0	1	2	3	4	5	6	7	8	9	10
0	1	2	3	4	5	6	7	8	9	10
0	1	2	3	4	5	6	7	8	9	10

Multiply.

0	1	2	3	4	5	6	7	8	9	10
4	4	4	4	4	4	4	4	4	4	4

Add.

4	4	4	4	4	4	4	4	4	4
	4	4	4	4	4	4	4	4	4
		4	4	4	4	4	4	4	4
			4	4	4	4	4	4	4
				4	4	4	4	4	4
					4	4	4	4	4
						4	4	4	4
							4	4	4
								4	4
									4

Multiply.

4	4	4	4	4	4	4	4	4	4
1	2	3	4	5	6	7	8	9	10

Give the products.

4	4	9	8	4	6	3	2	7
3	4	4	4	7	4	4	4	4
0	1	5	4	4	4	0	4	4
4	4	4	6	9	2	4	5	8

Give these same products and sums after adding 2.
Give these same products and sums after adding 3.

Multiplying by 4

Before you can multiply larger numbers by 4 you must know these products and be able to add 1, 2, or 3 to each.

4	5	6	7	8	9
4	4	4	4	4	4
16	20	24	28	32	36

Copy and multiply.

1. 64 ×4	**2.** 52 ×4	**3.** 73 ×4	**4.** 98 ×4	**5.** 326 ×4
6. 879 ×4	**7.** 991 ×4	**8.** 407 ×4	**9.** 2,348 ×4	**10.** 5,297 ×4
11. 7,320 ×4	**12.** 9,705 ×4	**13.** 2,968 ×4	**14.** 6,147 ×4	**15.** 9,876 ×4

PROBLEMS

1. How many wheels are there on 4 wagons?

2. There are 7 rows of boys marching 4 abreast. How many boys are there in the parade?

3. In our classroom there are 6 windows each of which has 4 panes of glass. How many panes of glass are there in these windows?

4. What is the product of 9 and 4?

5. There are 4 cupfuls in a quart. How many cupfuls are there in 3 quarts?

6. Show by addition that four 9-cent pads would cost 36 cents.

7. Show that it saves time to do this problem by multiplication.

8. Show that if you used four dimes to pay for these pads, the clerk should give you four pennies in change.

9. What kind of problem is this one? One pad contained 49 sheets of paper. After you used 20 sheets, how many were left in that pad?

MULTIPLICATION

By 5

Count by 5's to 50; count by 4's to 40, by 3's to 30.

Add.

0	1	2	3	4	5	6	7	8	9	10
0	1	2	3	4	5	6	7	8	9	10
0	1	2	3	4	5	6	7	8	9	10
0	1	2	3	4	5	6	7	8	9	10
0	1	2	3	4	5	6	7	8	9	10

Multiply.

0	1	2	3	4	5	6	7	8	9	10
5	5	5	5	5	5	5	5	5	5	5

Add.

5	5	5	5	5	5	5	5	5	5
	5	5	5	5	5	5	5	5	5
		5	5	5	5	5	5	5	5
			5	5	5	5	5	5	5
				5	5	5	5	5	5
					5	5	5	5	5
						5	5	5	5
							5	5	5
								5	5
									5

Multiply.

5	5	5	5	5	5	5	5	5	5
1	2	3	4	5	6	7	8	9	10

You already know:

5	5	5	5	1	2	3	4
1	2	3	4	5	5	5	5
5	10	15	20	5	10	15	20

You must learn:

5	6	7	8	9	10
5	5	5	5	5	5
25	30	35	40	45	50

Multiply and add 2. Give product and sum only.

5	5	4		6	3	8		9	5	7	
6	9	5		5	5	5		5	8	5	
5	5	9		5	2	5		5	5	5	
4	3	5		6	5	5		1	2	9	

6	1	0									
5	5	5									
5	5	5									
7	6	9									

Multiply and add 3 to each product; add 4 to each.

Multiplying by 5

You are now ready to multiply any number by 5.

Multiply.

1. 49 ×5	2. 58 ×5	3. 67 ×5	4. 75 ×5	5. 80 ×5
6. 256 ×5	7. 608 ×5	8. 919 ×5	9. 237 ×5	10. 762 ×5
11. 7,283 ×5	12. 6,739 ×5	13. 9,667 ×5	14. 8,290 ×5	15. 5,209 ×5

Multiply

16. 625 by 5	17. 937 by 5	18. 2,069 by 5
19. 3,209 by 5	20. 6,376 by 5	21. 4,880 by 5

PROBLEMS

1. How much must a father, a mother, and 2 children pay to ride on the trolley car if the fare is a nickel each?

2. Robert bought five 9-cent loaves of bread. How much did they cost? How much would his change be from a 50-cent piece?

3. Make a multiplication problem about 5×3; about 5×6; about 5×8.

4. A boy earned 8 cents a day on Monday, Tuesday, Wednesday, Thursday, and Friday. How much did he earn all together?

5. How many school days are there in 4 weeks?

Games with a Ball

The children form a circle, one child taking his place in the center. He holds a large ball, says "2," and bounces the ball to a child in the circle. The child catches it and bounces it back, saying, "4." The leader says "6," and bounces the ball to another child; and so on, up to 20.

After this counting game, the leader says "2 times 9," and bounces the ball to a child who gives the product. That child calls another problem and bounces the ball back to the leader who gives the product. If the leader misses, the child who bounced the ball answers his own problem and takes his place in the center of the circle. This game may be played by two groups of children who face each other in lines. The ball passes back and forth, each child giving a problem and the one to whom the ball is bounced answering and giving the next.

These games may be used for 3's and for larger numbers.

REVIEW

Add.

5	7	6	3	9	7	8	6	4	6	7	9
9	4	8	5	3	5	5	5	3	2	3	6

Subtract.

16	6	14	9	4	7	18	4	6	8	13	12
7	3	7	5	2	5	9	3	2	5	7	4

Add.

8	6	9	8	8	9	8	9	7	5	6	6
29	17	49	14	28	17	43	24	38	35	56	24

Subtract.

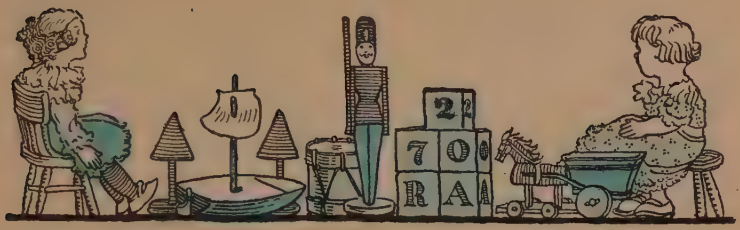
14	8	14	11	16	11	10	17	13	11	16	12
10	4	5	2	8	4	2	9	5	6	8	6

Test yourself in addition by adding as many of these examples as you can do correctly in five minutes.

63	37	95	17	88	586
8	95	68	89	275	352
23	57	76	97	73	984
17	78	98	96	987	399
92	59	26	86	449	845

In the same way, test yourself in subtraction.

90	505	740	953	5,297	4,951
17	124	76	874	4,708	683



Setting up a Toy Shop

Name some toys you have seen in shop windows. What part of the toy shop do the girls like best? What part do the boys like best?

Appoint a committee to plan for the doll department.

These are some ideas which may help that committee.

Use paper dolls. You will find these in many magazines. Some of the girls may bring paper dolls.

Dress small 5- and 10-cent dolls.

Bring your dolls to school.

Appoint a committee to plan for the other toys.

Some of these may be brought from home. Some may be made from paper or wood.

Pictures of toys may be cut from the magazines.

You must make your own price list and be very careful that the prices are what they should be. What are some of the ways you can find out about prices?

Each one in the class may take a turn playing shopkeeper and clerk. The children choose whose turn it is.

Each one in the class may buy two toys. How much will they cost? How will you pay for them? How much change will the shopkeeper give you?

Trimming a Christmas Tree

Alice, Ruth, Robert, and Edward are trimming a Christmas tree for some sick children. Here are the prices for trimmings.

Candles . . .	8¢ a dozen	Small balls . .	5¢ each
Tinsel	4¢ a yard	Large balls . .	10¢ each
Stars	2¢ each	Bags of popcorn .	6¢ each

Alice bought half a dozen small balls and a star.
Robert bought 3 large balls and 2 yards of tinsel.
Edward bought 5 bags of popcorn and 4 yards of tinsel.
Ruth bought 2 dozen candles, 2 large and 3 small balls.

1. Find how much each child spent.
2. Find how much it cost to trim the tree.
3. Find how many balls were on the tree.
4. Find how many candles were bought.

5. The children used all the candles but 10. How many candles did they use?

6. Of those they used, 12 were red and the others were green. How many green candles were there?

7. Write one problem about this Christmas tree.

8. Suppose you had 25 cents to spend for things to put on this tree. What would you buy?

REVIEW OF MULTIPLICATION FACTS

Give products only.

0	2	4	8	5	6	9	7	8	3	6	6	8	2	7	9	5	9
0	6	3	2	6	2	4	5	2	4	5	3	4	0	3	0	2	1
7	5	5	3	4	7	2	1	2	8	5	4	3	0	9	3	1	0
2	3	5	8	5	4	2	8	5	3	9	6	2	1	2	3	7	7
2	4	2	10	0	2	4	9	1	4	2	5	3	3	9	10	4	6
4	4	9	4	5	1	8	3	1	9	3	4	7	9	5	5	2	5

Give product and sum after adding 2.
Give product and sum after adding 3.
Give product and sum after adding 4.

Give the missing numbers.

30=6×?	9=3×?	10×?=20	4×?= 8
24=6×?	15=3×?	5×?=20	?×6=18
12=2×?	21=3×?	8×?=16	?×9= 0
12=3×?	32=4×?	4×?=16	?×4=36
35=5×?	18=3×?	2×?= 8	1×?= 1
18=2×?	40=5×?	3×?= 0	2×?=18

PROBLEMS

Read each problem silently. Be sure to use a correct sentence when you answer the question which is asked.

1. How many wheels are there on 5 bicycles?

2. How many wheels are there on 4 tricycles?

3. How many wheels are there on 3 automobiles?

4. How many wheels are there on your own and your brother's express wagons?

5. There are double shades at each of the 7 windows in our classrooms. How many shades are there?

6. A boy bought some tomato plants for his garden. He planted them in 3 rows, putting 6 plants in a row. How many plants had he?

7. Tom has 13 marbles. His brother has 8 more than Tom. How many marbles has his brother?

8. My newspaper costs 2 cents a day. How much does it cost a week if I do not have a paper on Sunday?

9. Old rubbers sell for 5 cents a pound. How much money does Frank get for 9 pounds?

10. There are 3 shelves in our bookcase. Each shelf holds 9 books. How many books can we put into the bookcase?

11. In this bookcase now there are 2 dozen books. There is room for how many more books?

12. How much is one quarter of a dollar?

13. How much change should you have from a dollar if you spend a quarter of it?

Join our Savings Club

A penny here, a penny there,
We try to save each day;
Sometimes we walk to save car fare
And put the fare away.

We never waste a single cent,
A nickel or a dime;
We're every one on saving bent,
We're thrifty all the time.

If you have no savings club, start one. Watch your money grow. Keep your accounts correctly.

1. Mary saved 20 cents on Monday and 14 cents on Tuesday. How much did she save in the two days?

2. Fred earned 12 cents each day for 4 days and put the money into his bank. How much money did he save?

3. Jane put 25 cents in the bank each week for five weeks. How much money did she have at the end of that time?

4. Sam put into the bank every month $5 which he earned by working on Saturdays. What was the amount of his earnings at the end of 9 months?

Some questions for you to answer:

1. How much did you each save this week?

2. How much did the girls save today?

3. How much did the boys save today?

4. How much did all of the class save this week?

5. Watch your accounts and see how much more you can save next week than you have saved this week.

MULTIPLICATION DRILL EXAMPLES[1]

Group **1.**

a	*b*	*c*	*d*	*e*
39	304	89	215	608
×2	×2	×3	×4	×5

Group **2.**

a	*b*	*c*	*d*	*e*
68	197	256	168	589
×2	×2	×3	×4	×5

Group **3.**

a	*b*	*c*	*d*	*e*
45	386	199	206	780
×2	×2	×3	×4	×5

Group **4.**

a	*b*	*c*	*d*	*e*
88	283	156	196	429
×2	×2	×3	×4	×5

Group **5.**

a	*b*	*c*	*d*	*e*
67	490	367	703	756
×2	×2	×3	×4	×5

Group **6.**

a	*b*	*c*	*d*	*e*
60	257	154	219	640
×2	×2	×3	×4	×5

[1] *To the teacher:* Similar groups of examples for drill have been placed in the back of the book, pp. 240–244. See *Manual*, p. 132, for suggestions in regard to their use.

Group **7.**

a	*b*	*c*	*d*	*e*
38	469	276	238	309
×2	×2	×3	×4	×5

DIVISION

By 2

Think, "How many 2's in 10?" or "10 divided by 2."

$2\overline{)10}$	$2\overline{)8}$	$2\overline{)14}$	$2\overline{)20}$	$2\overline{)6}$	$2\overline{)2}$
$2\overline{)0}$	$2\overline{)4}$	$2\overline{)18}$	$2\overline{)12}$	$2\overline{)16}$	$2\overline{)18}$

1. How many 2-cent pencils can you buy with a dime?

2. A dozen wheels are enough for how many 2-wheeled carts?

3. John went to the post office for 2-cent stamps. How many did he get for 18 cents?

4. Mother washed 8 curtains today. That is enough for how many windows, if one pair of curtains belongs at each window?

To find one half of a number divide the number by 2.

5. One half of 8 apples are how many apples?

6. One half of 20 marbles are how many marbles?

7. Josephine had 18 marbles. She gave half of them to her brother. How many did each have?

8. Mother cut the pie into halves. How many pieces were there?

DIVISION

By 3

$3\overline{)15}$ $3\overline{)21}$ $3\overline{)3}$ $3\overline{)12}$ $3\overline{)18}$ $3\overline{)30}$

$3\overline{)6}$ $3\overline{)24}$ $3\overline{)9}$ $3\overline{)27}$ $3\overline{)0}$

1. How many 3-cent apples can Jane buy if she has a nickel and a dime?

2. Three children came to play with Louise, each bringing the same number of dolls. There were 12 dolls. How many dolls did each girl bring?

3. Joseph has 3 rabbits. Last week he fed them 21 carrots. How many did he give to each rabbit?

4. Mary brought her teacher 18 roses. The teacher put them into 3 vases, with the same number of roses in each vase. How many were in each?

5. Toy balloons cost 3 cents each. John has 30 cents to spend. How many balloons can he buy?

6. Count by 3's to 30, beginning with 0.

7. Count by 3's to 0, beginning with 30.

To find one third of a number divide the number by 3.

8. Find one third of 18; of 21; of 6; of 9; of 30.

9. John, Jack, and Joe shared a pie equally. What part did each boy have?

10. How many are one third of 15 dolls?

11. Mother took 24 small sandwiches when she went with Ruth and Alice for a hike. How many was that for each?

12. How many cakes could each have from half a dozen cakes?

DIVISION

By 4

$4\overline{)20}$ $4\overline{)28}$ $4\overline{)40}$ $4\overline{)4}$ $4\overline{)16}$ $4\overline{)0}$

$4\overline{)36}$ $4\overline{)24}$ $4\overline{)8}$ $4\overline{)12}$ $4\overline{)32}$

1. How many 4-cent tops can be bought for 2 dimes?

2. Mary went to the post office for 4-cent stamps. How many can she get for 28 cents?

3. Count by 4's to 40, beginning with 0.

To find one fourth of a number divide the number by 4.

4. Find one fourth of 20; of 12; of 8; of 16; of 28; of 4.

5. Father ate one fourth of a dozen eggs for his breakfast. How many eggs did he eat?

6. Four boys own equally a 20-cent ball. How much money did each boy have to pay?

DIVISION

By 5

$5\overline{)20}$ $5\overline{)30}$ $5\overline{)5}$ $5\overline{)15}$ $5\overline{)40}$ $5\overline{)45}$ $5\overline{)10}$

$5\overline{)50}$ $5\overline{)0}$ $5\overline{)25}$ $5\overline{)35}$ $5\overline{)45}$ $5\overline{)15}$ $5\overline{)25}$

1. How many nickels can Jack get for a quarter?

2. How many apples at 5 cents each can you buy for 35 cents?

3. Mother paid 40 cents for 5 grapefruit. How much did each cost?

4. How many bottles of ink at 5 cents a bottle can you buy for 15 cents?

5. Father bought 5 chops for 45 cents. How much did each cost?

6. Count by 5's to 50, beginning with 0.

7. May's teacher asked her to tie 30 roses into bunches of 5 each, to be taken to the hospital. Do you know how many bunches she made?

8. Make a division problem about buying 5-cent presents for a Jack Horner pie.

9. How can you find one fifth of a number?

10. Find one fifth of 25; one fifth of 40; one fifth of 50.

REVIEW OF DIVISION

$5\overline{)20}$	$2\overline{)20}$	$3\overline{)21}$	$4\overline{)28}$	$4\overline{)24}$	$3\overline{)27}$	$2\overline{)18}$
$3\overline{)24}$	$5\overline{)25}$	$4\overline{)20}$	$4\overline{)32}$	$4\overline{)36}$	$5\overline{)30}$	$3\overline{)6}$
$5\overline{)35}$	$4\overline{)40}$	$3\overline{)18}$	$4\overline{)16}$	$3\overline{)15}$	$4\overline{)12}$	$3\overline{)12}$
$3\overline{)3}$	$4\overline{)8}$	$4\overline{)4}$	$3\overline{)9}$	$3\overline{)0}$	$5\overline{)40}$	$2\overline{)10}$
$5\overline{)45}$	$5\overline{)0}$	$5\overline{)10}$	$5\overline{)15}$	$5\overline{)50}$	$3\overline{)30}$	$5\overline{)5}$

One half of 20 =
One third of 21 =
One fourth of 16 =
One half of 8 =
One third of 15 =
One fifth of 25 =

One fourth of 28 =
One half of 16 =
One third of 9 =
One fifth of 20 =
One half of 18 =
One fourth of 8 =

Helping Mother and Father

In a family of 5 children, the four oldest ones each did three things every day to help their father and mother.

1. Edith dressed little sister twice a day. How many times did she dress her each week?

2. She helped her mother serve two meals a day, every school day. How many times did she serve in a week?

3. There were six beds to be made daily. If Edith made half of them, how many beds did she make in a week?

---

1. George answered the telephone 35 times and the doorbell 9 times during one week. How many calls was that?

2. He carried in 15 pails of coal in a week. That was *about* how many pails each day?

3. Every day he went to the grocery for his mother. One day he paid 15 cents for bread, 30 cents for eggs, 20 cents for cereal, 10 cents for lemons, and 20 cents for fruit. How much less than a dollar did he spend?

---

1. Grace took care of little sister every day from four until six o'clock. How many hours did she keep her each week?

2. She practiced her music a half hour each day except Sunday. How many hours was that each week?

3. She wiped the breakfast and dinner dishes every day for her mother. How many times did she wipe dishes each week?

---

1. Harry is 6 years younger than his sister Edith who is 15. How old is Harry?

2. Harry fed the chickens and gathered the eggs. One day he found 4 eggs in each of 6 nests. How many eggs were there?

3. He carried the eggs to the house, 12 at a time. How many trips did he make?

4. One Friday night he said, "Father, I have had a perfect spelling lesson every day for two weeks and we had 5 words each day." Do you know how many words he had during those two weeks?

Some Work for You

Choose which one of these you will do.

1. Write two problems about things you do to help at home.

2. Write two problems telling how you help your mother.

3. Write two problems about money you have earned.

4. Write two problems about things you have bought.

PROBLEMS

1. How many 5-cent ice-cream cones can I buy for 25 cents?

2. How many 2-cent stamps can Julia buy for 12 cents?

3. Twenty children marched together in 2 equal rows. How many children were in each row?

4. In a class there were 32 children who played together in groups of 4. How many groups were playing?

5. Mother made 14 yards of lace. She could make 2 yards in a week. How many weeks did it take her?

6. A gardener set out 20 peach trees. He put 5 in each row. How many rows did he have?

7. Mark earned 20 cents. He spent it for oranges at 4 cents each. How many oranges did he buy?

8. Harold spent four weeks at a boys' camp. How many days was that?

9. Frances's mother bought 12 yards of ribbon which she cut into hair ribbons 1 yard long. How many hair ribbons did she make?

10. Mother made 30 doughnuts, 5 of which she served each day. How long did they last?

11. How many marbles can you buy for 8 cents, if each marble costs 2 cents?

12. Nat has a set of 8 books. They cost 3 dollars each. How much did the entire set cost?

13. A boy went to school 35 days without being absent once. How many school weeks did that make?

Jack-be-Nimble

Use cards containing division facts up to $2\overline{)20}$ $3\overline{)30}$ $4\overline{)40}$ $5\overline{)50}$

One child is Jack. He holds the cards and must know the answers. The children take turns in answering and the leader gives the cards to those who answer correctly. When all the cards have been given out, the child who has the most cards and was nimblest in answering, may be Jack, the next leader.

LIQUID MEASURE

2 pints = 1 quart	4 quarts = 1 gallon
pt. qt.	qt. gal.

1. When your mother sends you to the store to buy milk, for how much do you ask?

2. Find the bottle that the man gives you if you ask for a pint. What other measures hold the same amount?

3. Find all the measures that hold one pint. Show that a pint of ice cream and a pint of milk are the same amount.

4. If your mother sends you for a quart of milk, what bottle will the grocer give you? If he does not have a quart bottle, how many pint bottles will he give you? Show with the measures that this is the right amount. Compare two pints and one quart.

5. Anna Mary buys a bottle of milk to drink each morning at school. This bottle holds just half as much as a pint bottle. What is the size of the bottle? How many of these bottles hold an amount equal to a pint?

6. Find how many pints of milk Mary bought in 4 days if she bought one half-pint bottle each day.

7. When we need a large quantity of milk, we sometimes buy it by the gallon. Find the largest measure we have. How many quarts will it hold?

8. Show that a gallon oil can holds the same as a gallon measure.

9. How many quarts will a 2-gallon jar hold?

10. Father bought 5 gallons of gasoline. How many quarts did he get?

11. How many pints of milk will fill 3 quart bottles?

12. Martha drinks a pint of milk every day in the week. How many quarts does she drink each week?

13. How much do 3 quarts of milk cost at 15 cents a quart?

14. Father put a gallon of vinegar into quart bottles. How many bottles did he use?

15. Mother cuts a quart brick of ice cream into 5 pieces. How many quarts will she need to serve 20 people?

16. Milk is 15 cents a quart or 9 cents a pint. How much do two quarts and one pint cost?

17. A pint of oysters costs 20 cents. How much does a quart of oysters cost?

18. A quart of buttermilk costs 10 cents. How much will a gallon cost?

19. How many pint bottles can I fill with half a gallon of milk?

20. Milk is 15 cents a quart or 9 cents a pint. Is it cheaper to buy 3 quarts in quart bottles or in pint bottles? What is the difference in price?

21. It costs 40 cents a quart to make ice cream. Mother made a gallon. How much did it cost?

22. Gasoline is 25 cents a gallon. Father used 5 gallons on a trip. How much did his gasoline cost?

ADDITION AND SUBTRACTION

Add. Begin at the bottom; say, "30 and 60 are 90," "50 and 20 are 70," and so on.

1.	60	20	70	40	70	20	80	30
	30	50	20	30	30	90	10	50
2.	90	60	70	40	80	70	90	80
	30	20	60	90	30	20	60	50
3.	40	70	90	30	80	90	70	50
	80	90	40	60	30	30	80	10

Add. Say, "33 and 60 are 93."

1.	60	40	20	60	80	20	40
	33	34	62	23	18	37	45
2.	20	30	50	70	40	60	80
	48	39	33	29	54	38	28
3.	40	70	30	60	20	10	70
	36	18	63	25	46	59	27
4.	70	80	20	90	60	50	80
	56	68	98	57	96	85	49

Add. Say, "32 and 60 are 92 and 3 are 95."

1.	63	54	63	27	43	32	43
	32	23	34	62	56	64	52
2.	72	45	61	24	32	26	54
	26	34	36	35	46	33	25
3.	34	43	41	29	73	84	92
	25	36	36	31	26	25	20

Add. Say, "63 and 90 are 153 and 2 are 155."

1.	92	96	75	76	44	63	76
	63	52	33	23	85	85	81
2.	85	74	35	64	24	65	74
	23	82	92	83	93	92	63

1.	40	50	70	50	60	90	80	70
	−20	−30	−20	−40	−30	−70	−30	−50
2.	90	50	60	20	80	70	50	60
	−30	−20	−40	−5	−40	−10	−40	−20
3.	95	35	65	75	85	36	93	72
	−20	−10	−30	−40	−20	−29	−40	−20
4.	91	36	49	82	73	45	36	42
	−40	−20	−10	−60	−20	−20	−30	−20
5.	96	56	27	39	28	49	38	63
	−25	−23	−17	−14	−13	−23	−27	−21

Add groups of 10 or less. In the first column, say, "5, 10, 20, 24."

4	5	9	5	3	8	6	9	4
1	2	6	2	9	3	2	3	3
9	3	2	3	6	9	3	6	2
5	6	3	6	4	7	4	8	8
2	4	4	2	2	9	1	1	5
3	5	2	9	9	5	7	9	6
4	8	7	5	5	5	7	3	5
3	6	2	3	3	4	3	2	9
2	2	9	2	2	9	2	5	2
5	7	9	6	9	8	6	3	4
6	1	8	7	8	9	9	6	3
1	8	1	1	6	6	5	9	8

7	8	9	8	5	3	7	7	7
2	2	2	3	9	6	2	9	2
3	3	5	5	4	3	3	6	3
6	4	3	2	6	5	6	2	3
2	3	6	8	2	9	9	8	4
5	6	7	6	7	8	8	5	2
7	8	3	7	9	7	5	9	9

Say, "23, 33, 36, 46."

2	4	3	4	5	4	2	7	3
8	2	6	6	5	7	9	3	2
3	3	5	2	3	2	1	2	5
4	7	7	8	2	8	3	8	9
6	2	3	5	7	7	6	5	1
23	18	22	17	19	16	15	15	18

PROBLEMS

(Without Pencil)

Read each problem silently. Decide what kind of problem it is. Then give the correct answer in a complete sentence.

1. A boy had 50 black chickens and 40 white ones. How many chickens had he?

2. Of the 75 bushels of apples which a farmer gathered, he sold 25 bushels and put the others into his cellar. How many bushels did he put into the cellar?

3. There are 50 trees in a small peach and apple orchard. Twenty-five are apple trees. How many are peach trees?

4. Louis went to the store for his mother. He spent 50 cents for meat, 10 cents for crackers, and 20 cents for fruit. How much money did he spend?

5. Louis gave the grocer a dollar bill. How much change did he receive?

6. Anna has a list of 28 words which she misspelled. If she learns 4 each day, how long will it take her to learn them all?

7. If you have 30 words to learn, how many must you learn each day to know them all at the end of a school week?

8. John is 15 years old and his brother is 10 years younger. How old is his brother?

9. In a class, there are 20 girls and 25 boys. How many children are there in the class?

10. There are 30 houses on one side of a street and 35 on the other side. How many houses are on that street?

11. Richard received a ball, a bat, and a glove on his birthday. The ball cost 20 cents, the bat 30 cents, and the glove 75 cents. Would one dollar pay for all of them?

12. A farmer brought 60 bushels of apples to town. He sold half of them to Mr. Jones. How many bushels of apples did Mr. Jones buy?

13. Lucile had 40 cents. She bought a hair ribbon for 20 cents. How much money had she left?

14. Martha had 50 tickets to sell. After she sold 10 of them, how many had she left to sell?

15. Ralph earned 30 cents and found 50 cents. How much money had he then?

16. On her way to school, Kate met 20 boys and 30 girls. How many children did she meet?

17. Ruth paid 60 cents for a new book and had 29 cents left. How much money had she at first?

18. Robert read 30 pages of his new book today, and 40 pages yesterday. How many pages has he read?

19. There are 100 pages in Robert's book. How many pages has he to read before he finishes the book?

20. Father is 30 years older than Jack. Jack is 5 years old. How old is Father?

21. Max is 10 years old and Lillian is 15. How old will Max be when Lillian is 20 years old?

22. A milkman sold 30 bottles of milk on Tuesday. This was 5 more than he sold on Monday. How many bottles did he sell on Monday?

23. Reuben has 6 dimes. Fred has a half-dollar and a nickel. Which one has more money, and how much more?

24. In the second grade, there are 36 children. That is 4 fewer than are in the third grade. How many children are there in the third grade?

PROBLEMS

(With Pencil)

1. A man had $262. He spent $125 for a horse. How much money had he left?

2. In one classroom the children were using 40 readers, 39 arithmetics, 36 geographies, and 38 spellers. How many of these books were in use in that classroom?

3. On a large farm, there are 16 horses, 109 cows, 93

sheep, 49 pigs, 345 chickens, 4 cats, and 3 dogs. How many animals are there on that farm?

4. In a certain school 234 children tried an examination. 226 children passed. How many failed?

5. Joseph is now 6 years old. In how many years will he be 21 years old?

6. There are 18 boys and 26 girls in our class. Are there more or less than 50 children in the class?

7. John has $13 and wishes to buy a $27 bicycle. How much more money must he earn before he can pay for it?

8. John earned 17 cents today and 12 cents more than that yesterday. How much money did he earn yesterday?

9. Write these numbers in the order of their size, beginning with the largest: 29, 93, 17, 85, 6.

10. Find the sum of the numbers in problem 9.

ADDITION AND SUBTRACTION PRACTICE GROUPS[1]

In these examples you must be careful to arrange the numbers correctly for addition and subtraction.

Remember that + is the sign for addition. It is read *plus* or *and*. = is read *equal* or *equals*.

Group **1.**

a. Subtract 39 from 202.

b. Subtract 395 from 1,028.

c. Add 732; 93; 826; 573; 82.

d. 7,329+625+873+926+54=

[1] *To the teacher:* Similar groups for drill have been placed in the back of the book, pp. 245–250. See *Manual*, p. 148, for suggestions in regard to their use.

Group **2**.

a. Subtract 38 from 325.
b. Subtract 224 from 1,061.
c. Add 26; 39; 827; 532; 967.
d. Add 380; 49; 27; 393; 8,750.

Group **3**.

a. Subtract 27 from 132.
b. Subtract 331 from 2,009.
c. Add 329; 482; 7,396; 209; 53; 42.
d. Find the sum of 39; 270; 48; 695; 284.

Group **4**.

a. Subtract 97 from 302.
b. Subtract 365 from 7,021.
c. Add 260; 392; 89; 5,327; 936.
d. Find the sum of 78; 9,982; 593; 27; 49; 395.

Group **5**.

a. Subtract 97 from 805.
b. Subtract 482 from 3,001.
c. Add 605; 983; 27; 7,325; 9,837.
d. Find the sum of 635; 296; 873; 959; 437; 628.

Group **6**.

a. Subtract 69 from 702.
b. Subtract 250 from 1,022.
c. Add 397; 285; 7,320; 9,873; 27; 39.
d. Find the sum of 36; 270; 593; 296; 48; 329.

Group **7**.

a. Subtract 79 from 208.
b. Subtract 729 from 3,024.
c. Add 739; 285; 296; 43; 293; 871.
d. $732+983+568+325+7,896=$

MULTIPLICATION

By 6

Add.

0	1	2	3	4	5	6	7	8	9	10
0	1	2	3	4	5	6	7	8	9	10
0	1	2	3	4	5	6	7	8	9	10
0	1	2	3	4	5	6	7	8	9	10
0	1	2	3	4	5	6	7	8	9	10
0	1	2	3	4	5	6	7	8	9	10

Multiply.

0	1	2	3	4	5	6	7	8	9	10
6	6	6	6	6	6	6	6	6	6	6

Add.

6	6	6	6	6	6	6	6	6	6
	6	6	6	6	6	6	6	6	6
		6	6	6	6	6	6	6	6
			6	6	6	6	6	6	6
				6	6	6	6	6	6
					6	6	6	6	6
						6	6	6	6
							6	6	6
								6	6
									6

Multiply.

6	6	6	6	6	6	6	6	6	6
1	2	3	4	5	6	7	8	9	10

Learn.

6 6 36	6 7 42	6 8 48	6 9 54	6 10 60	7 6 42	8 6 48	9 6 54	10 6 60

Give the products of :

6	10	5	9	2	4	7	8	1	0	3	9
6	6	6	6	6	6	6	6	6	6	6	6

Give these same products and sums after adding 2.
Give these same products and sums after adding 3.
Give these same products and sums after adding 4.
Give these same products and sums after adding 5.

Multiply.

1.	78	**2.**	96	**3.**	34	**4.**	792	**5.**	835	**6.**	408
	6		6		6		6		6		6
7.	607	**8.**	596	**9.**	7,009	**10.**	8,297	**11.**	5,482	**12.**	7,391
	6		6		6		6		6		6

DIVISION

By 6

$6\overline{)30}$ $6\overline{)48}$ $6\overline{)12}$ $6\overline{)18}$ $6\overline{)42}$ $6\overline{)36}$ $6\overline{)6}$ $6\overline{)24}$ $6\overline{)60}$ $6\overline{)54}$

Tell the missing numbers.

÷ means *divided by.*

6×5=	48÷6=	5×6=	42÷6=
7×6=	30÷6=	3×6=	24÷6=
9×6=	54÷6=	6×7=	6÷6=
4×6=	18÷6=	2×6=	36÷6=

PROBLEMS

1. Each table seats 6 persons. How many tables are needed for 24 persons?

2. I have 3 dozen roses to divide among the tables. How many roses have I? How many will be on each table?

3. How many 6-cent oranges can I get for 42 cents?

To find one sixth of a number divide that number by 6.

4. One sixth of 24 apples are —— apples?
One sixth of 42 oranges are —— oranges?

5. Stella put half a dozen eggs into each of 7 baskets. How many eggs did she put into the baskets?

6. Jack had 42 marbles. He gave his brother one sixth of them. How many did his brother have?

MULTIPLICATION

By 7

Add.

0	1	2	3	4	5	6	7	8	9	10
0	1	2	3	4	5	6	7	8	9	10
0	1	2	3	4	5	6	7	8	9	10
0	1	2	3	4	5	6	7	8	9	10
0	1	2	3	4	5	6	7	8	9	10
0	1	2	3	4	5	6	7	8	9	10
0	1	2	3	4	5	6	7	8	9	10

Multiply.

0	1	2	3	4	5	6	7	8	9	10
7	7	7	7	7	7	7	7	7	7	7

Add.

7	7	7	7	7	7	7	7	7	7
	7	7	7	7	7	7	7	7	7
		7	7	7	7	7	7	7	7
			7	7	7	7	7	7	7
				7	7	7	7	7	7
					7	7	7	7	7
						7	7	7	7
							7	7	7
								7	7
									7

Multiply.

7	7	7	7	7	7	7	7	7	7
1	2	3	4	5	6	7	8	9	10

Learn.

7 7 49	8 7 56	9 7 63	10 7 70	7 8 56	7 9 63	7 10 70

Give products at sight.

9	6	3	4	10	1	8	5	0	2	7
7	7	7	7	7	7	7	7	7	7	7

Give these same products and sums after adding 2.

Give these same products and sums after adding 3.

Give these same products and sums after adding 4.

Give these same products and sums after adding 5.

Give these same products and sums after adding 6.

When you can do this quickly, you are ready to multiply any number by 7.

Multiply.

1. 64 by 7	5. 319 by 7	9. 370 by 7
2. 98 by 7	6. 753 by 7	10. 953 by 7
3. 75 by 7	7. 498 by 7	11. 834 by 7
4. 627 by 7	8. 849 by 7	12. 607 by 7

Tell the missing numbers.

$7\times8=$	$7\times\ 1=$	Six 7's are ——	$0\times7=$	$7\times\ ?=35$
$7\times4=$	$7\times10=$	Nine 7's are ——	$7\times7=$	$7\times\ ?=21$
$7\times3=$	$7\times\ 5=$	Four 7's are ——	$2\times7=$	$7\times\ ?=56$

DIVISION

By 7

$7\overline{)49}$ $7\overline{)63}$ $7\overline{)14}$ $7\overline{)35}$ $7\overline{)42}$ $7\overline{)56}$ $7\overline{)21}$ $7\overline{)28}$

$7\overline{)42}$ $7\overline{)0}$ $7\overline{)70}$ $7\overline{)56}$ $7\overline{)49}$ $7\overline{)35}$ $7\overline{)\ 8}$ $7\overline{)\ 6}$

$49\div7=$	$56\div7=$	$?\div7=8$	$?\div7=0$
$14\div7=$	$70\div7=$	$?\div7=4$	$?\div7=1$
$21\div7=$	$28\div7=$	$?\div7=5$	$?\div7=6$
$42\div7=$	$63\div7=$	$?\div7=9$	$?\div7=3$

PROBLEMS

1. Our automobile seats 7 persons. How many such cars are needed to carry 56 persons to a picnic?

2. In our classroom are 42 chairs in 7 equal rows. How many chairs are in each row?

3. The teacher wrote 35 words on the board in 7 equal columns. How many words were in each column?

4. Charles went to the country last summer and stayed 49 days. How many weeks did he stay?

To find one seventh of a number divide that number by 7.

5. Find one seventh of 21 apples.
Find one seventh of 14 marbles.
Find one seventh of 70 cents.
Find one seventh of 28 candles.

6. On his seventh birthday Ned gave to the Red Cross a nickel for each year of his age. How much did he give?

7. Mary visited a friend for 3 weeks. How many days did she stay?

MULTIPLICATION

By 8

Add.

0	1	2	3	4	5	6	7	8	9	10
0	1	2	3	4	5	6	7	8	9	10
0	1	2	3	4	5	6	7	8	9	10
0	1	2	3	4	5	6	7	8	9	10
0	1	2	3	4	5	6	7	8	9	10
0	1	2	3	4	5	6	7	8	9	10
0	1	2	3	4	5	6	7	8	9	10
0	1	2	3	4	5	6	7	8	9	10

Multiply.

0	1	2	3	4	5	6	7	8	9	10
8	8	8	8	8	8	8	8	8	8	8

Add.

8	8	8	8	8	8	8	8	8	8
	8	8	8	8	8	8	8	8	8
		8	8	8	8	8	8	8	8
			8	8	8	8	8	8	8
				8	8	8	8	8	8
					8	8	8	8	8
						8	8	8	8
							8	8	8
								8	8
									8

Multiply.

8	8	8	8	8	8	8	8	8	8
1	2	3	4	5	6	7	8	9	10

Learn.

8	8	9	10	8
8	9	8	8	10
64	72	72	80	80

Multiply and add 3; give product and sum only.

7	9	4	2	6	0	10	3	5	8	1
8	8	8	8	8	8	8	8	8	8	8

Give these same products and sums after adding 4.
Give these same products and sums after adding 5.
Give these same products and sums after adding 6.
Give these same products and sums after adding 7.
Now you are able to multiply any number by 8.

Multiply.

1. 48	**2.** 36	**3.** 91	**4.** 83	**5.** 79
8	8	8	8	8
6. 602	**7.** 835	**8.** 740	**9.** 862	**10.** 964
8	8	8	8	8

Give the missing number.

$8\times ?=40$	$8\times ?=16$	$8\times ?=0$
$8\times ?=72$	$8\times ?=48$	$8\times ?=32$
$8\times ?=24$	$8\times ?=64$	$8\times ?=80$
$8\times ?=56$	$8\times ?=8$	$?\times ?=56$

DIVISION

By 8

$8\overline{)64}$	$8\overline{)8}$	$8\overline{)24}$	$8\overline{)48}$	$8\overline{)72}$	$8\overline{)40}$
$8\overline{)48}$	$8\overline{)16}$	$8\overline{)56}$	$8\overline{)32}$	$8\overline{)80}$	$8\overline{)0}$

1. How many chairs at \$8 each can Father buy for \$24?

2. How many 8-cent stamps can I get for 40 cents?

To find one eighth of a number divide the number by 8.

3. Find one eighth of 16 apples; one eighth of 40 pins.

4. One eighth of 24 children sliding on a hill are girls. How many girls are there?

5. Father works 8 hours every day. How many hours does he work in a week, not counting Sunday?

6. Make a multiplication problem about 8×3.

7. Make a division problem about $8\overline{)24}$.

MULTIPLICATION

By 9

Add.

0	1	2	3	4	5	6	7	8	9	10
0	1	2	3	4	5	6	7	8	9	10
0	1	2	3	4	5	6	7	8	9	10
0	1	2	3	4	5	6	7	8	9	10
0	1	2	3	4	5	6	7	8	9	10
0	1	2	3	4	5	6	7	8	9	10
0	1	2	3	4	5	6	7	8	9	10
0	1	2	3	4	5	6	7	8	9	10
0	1	2	3	4	5	6	7	8	9	10

Multiply.

0	1	2	3	4	5	6	7	8	9	10
9	9	9	9	9	9	9	9	9	9	9

Add.

9	9	9	9	9	9	9	9	9	9
	9	9	9	9	9	9	9	9	9
		9	9	9	9	9	9	9	9
			9	9	9	9	9	9	9
				9	9	9	9	9	9
					9	9	9	9	9
						9	9	9	9
							9	9	9
								9	9

Multiply.

9	9	9	9	9	9	9	9	9	9
1	2	3	4	5	6	7	8	9	10

Learn.

9 9 81	10 9 90	9 10 90

Multiply and add 2 to each of the following.

7	9	4	2	6	8	0	10	3	5	1
9	9	9	9	9	9	9	9	9	9	9

Give these same products and sums after adding 3; 4; 5; 6; 7; 8.

Multiply.

1. 91 9	**2.** 84 9	**3.** 76 9	**4.** 403 9	**5.** 590 9
6. 629 9	**7.** 583 9	**8.** 396 9	**9.** 836 9	**10.** 793 9

Give the missing number.

9×?=72	9×?=27	9×?=0
9×?=63	9×?=81	9×?=36
9×?=45	9×?=90	9×?=54
9×?=18	9×?= 9	?×?=63

DIVISION

By 9

9)63	9)81	9)18	9)36	9)27	9)45	9)90
9)72	9)4	9)6	9)9	9)7	9)8	9)0

PROBLEMS

1. How many baseball nines can be formed from a class of 45 boys?

2. A boy's book has 90 pages. He reads 9 pages each day. In how many days can he finish the book?

To find one ninth of a number divide that number by 9.

3. Find one ninth of 18 houses; of 90 cents.
   Find one ninth of 27 apples; of 72 books.

4. Count by 9's to 90, beginning with 0.

5. How many days are there in 9 weeks?

MULTIPLICATION

By 10

Prove that 10 tens are 100.

Count by 10's to 100, beginning with 0.

Ten 6's are ——	Ten 9's are ——	Ten 3's are ——
Ten 8's are ——	Ten 2's are ——	Ten 7's are ——
Ten 5's are ——	Ten 1's are ——	Ten 4's are ——

To multiply any number by 10, annex one 0 to that number.

10×9	10×10	10×8
10×7	10×6	10×2

In the same way, at sight, tell:

10×12	10×19	10×13	10×20
10×14	10×17	10×16	10×40
10×15	10×11	10×18	10×90

DIVISION

By 10

To find one tenth of a number divide that number by 10.

Find one tenth of 60 Find one tenth of 40
Find one tenth of 80 Find one tenth of 30

$10\overline{)70}$ $10\overline{)80}$ $10\overline{)40}$ $10\overline{)90}$ $10\overline{)100}$ $10\overline{)10}$

$10\overline{)0}$ $10\overline{)30}$ $10\overline{)20}$ $10\overline{)50}$ $10\overline{)60}$ $10\overline{)80}$

Can you tell an easy way to divide by 10 any number which ends in 0?

PROBLEMS

1. How many dimes are equal in value to one dollar?
2. How many dimes are equal in value to 50 cents?
3. There are 10 months of school each year. For how many months is a boy in school in 8 years?
4. How many months are needed for his high-school work of 4 years?
5. Ben saves $10 every year. How much will he have saved at the end of 3 years?
6. Marion has 70 cents with which to buy 10-cent toys. How many toys can she buy?
7. If 80 marbles are divided equally among 10 boys, how many marbles will each boy get?
8. Ethel invited 5 of her friends to go with her to the store. They each had a 10-cent dish of ice cream. How much money must Ethel pay?

REVIEW

Multiply. Give answers at sight.

6	7	8	9	5	4	2	4	1	0
1	3	2	4	6	7	8	9	8	7
9	8	7	6	5	4	3	2	1	0
9	8	7	6	5	4	3	2	1	5
6	0	5	8	3	9	8	9	8	5
9	4	8	6	9	5	7	6	5	9
9	4	2	1	5	9	3	6	7	3
7	3	6	6	3	2	6	4	9	4
0	8	0	7	8	2	2	5	6	3
2	9	3	5	4	5	1	4	3	7
4	4	7	6	0	0	4	7	1	8
2	5	2	5	9	8	6	4	3	3
3	9	7	7	0	9	1	0	1	2
2	3	8	6	6	8	9	1	2	9

Divide. Give answers at sight.

$2\overline{)6}$	$3\overline{)9}$	$7\overline{)42}$	$9\overline{)72}$	$1\overline{)1}$	$1\overline{)2}$	$3\overline{)24}$	$2\overline{)4}$	$4\overline{)20}$
$7\overline{)14}$	$6\overline{)30}$	$9\overline{)54}$	$4\overline{)24}$	$7\overline{)28}$	$3\overline{)3}$	$8\overline{)24}$	$9\overline{)45}$	$4\overline{)28}$
$7\overline{)21}$	$6\overline{)18}$	$5\overline{)20}$	$2\overline{)2}$	$5\overline{)35}$	$5\overline{)45}$	$8\overline{)72}$	$5\overline{)15}$	$7\overline{)35}$
$4\overline{)32}$	$5\overline{)5}$	$5\overline{)25}$	$3\overline{)18}$	$3\overline{)21}$	$8\overline{)32}$	$6\overline{)54}$	$7\overline{)56}$	$6\overline{)42}$

Ruth's Party

Ruth invited 3 girls and 4 boys to her party. That made —— children.

Mother gave them each:

4 sandwiches. That was —— sandwiches.

2 cups of cocoa. That was —— cups.

6 small pieces of candy. That was —— pieces.

1 ten-cent toy. They cost —— cents.

Give problems about a party you have had.

PROBLEMS

(Without Pencil)

Tell what kind of problem each one is. Then give the answer in a correct sentence.

1. In one week William delivered 6 papers to each of 7 customers. How many papers did he deliver?

2. How many baseball nines can be formed from a class of 36 boys?

3. How many days are there in 4 weeks?

4. Julia went to school 40 days without being absent. How many school weeks did that make?

5. What is the change from a quarter-dollar after buying 9 two-cent stamps?

6. How much will a 5-cent daily newspaper cost for a week, not counting Sunday?

7. How many weeks are there in 63 days?

8. How many cookies are there in a dozen and a half?

9. A girl has 7 dimes and a nickel. How much money has she?

10. How much less than a dollar has she?

11. Beatrice bought 6 ten-cent dolls. How much did they cost?

12. How much will 6 nine-cent loaves of bread cost?

13. Mother cuts a quart of ice cream into 7 pieces. How many quarts are needed to serve 42 children?

14. Harold invited 7 boys and 12 girls to his party. How many children were invited?

15. Count by 6's to 60.

16. Rice costs 10 cents a pound. Find the cost of 5 pounds of rice.

17. Toy boats are 9 cents each. How much do 8 boats cost?

18. How many pints are there in 8 quarts of milk?

19. Mother used 4 quarts of milk every day. How many quarts did she use in a week?

20. Rodney has 8 dimes in his bank. How much money must he save before he will have one dollar?

1923		JULY				1923
SUN	MON	TUE	WED	THU	FRI	SAT
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

1923		AUGUST				1923
SUN	MON	TUE	WED	THU	FRI	SAT
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

Two Months at Camp

1. Dot and May spent these two months at a girls' camp. How many days were they there?

2. They went swimming twice a day. How many times was that?

3. There were 28 girls besides Dot and May at the camp in July. How many was that?

4. This was 10 more than were there in August. How many were there in August?

5. Dot wrote to her mother every Sunday. How many letters was that during the summer?

6. May wrote to her father each Wednesday and each Saturday. How many letters did she write to him?

7. On the second Monday of each month the girls all went to the beach. Tell the dates of their beach trips.

8. Every Friday Dot had a riding lesson. Tell the dates of these lessons.

9. On the fourth Thursday of July, Dot's father and mother came and stayed until the first Monday of August. How long was that?

MULTIPLICATION DRILL EXAMPLES[1]

Group **1.**

a	*b*	*c*	*d*	*e*
129	720	124	341	869
×6	×7	×8	×9	×2

Group **2.**

a	*b*	*c*	*d*	*e*
328	593	296	578	908
×6	×7	×8	×9	×3

Group **3.**

a	*b*	*c*	*d*	*e*
260	156	902	981	1,405
×6	×7	×8	×9	×4

Group **4.**

a	*b*	*c*	*d*	*e*
608	124	924	508	3,940
×6	×7	×8	×9	×6

Group **5.**

a	*b*	*c*	*d*	*e*
253	724	345	290	3,280
×6	×7	×8	×9	×5

Group **6.**

a	*b*	*c*	*d*	*e*
153	175	296	648	1,098
×6	×7	×8	×9	×7

[1] *To the teacher:* Similar examples for drill have been placed in the back of the book, pp. 250–255. See *Manual*, p. 156, for suggestions in regard to their use.

DIVISION WITH A REMAINDER

Dividing by 2

Count by 2's to 20. Learn these numbers. How will they help you divide by 2?

$2\overline{)2}$	$2\overline{)3}$	$2\overline{)4}$	$2\overline{)5}$	$2\overline{)6}$	$2\overline{)7}$	$2\overline{)8}$
$2\overline{)9}$	$2\overline{)10}$	$2\overline{)11}$	$2\overline{)12}$	$2\overline{)13}$	$2\overline{)14}$	$2\overline{)15}$
$2\overline{)16}$	$2\overline{)17}$	$2\overline{)18}$	$2\overline{)19}$	$2\overline{)20}$	$2\overline{)0}$	$2\overline{)1}$

Notice that when you divide by 2 the remainder is never more than 1. When you know how many times 2 is contained in all the numbers from 1 to 19, and the remainders, if any, you are ready to divide any number by 2.

How can we find each one's share of the 86 postal savings stamps which Uncle Fred sent to John and Bob?

A. This is the way to divide 86 by 2.

43 Say, "How many 2's in 8? 4." Write 4 over 8.
$2\overline{)86}$ Say, "How many 2's in 6? 3." Write 3 over 6.

B. This is the way to divide when there is a remainder.

Say, "How many 2's in 7? 3 and 1 remaining."
38 Write 3 over 7 and think 1 before 6, making 16.
$2\overline{)76}$ Then say, "How many 2's in 16? 8." Write 8 over 6.

C. Say, "How many 2's in 17? 8 and 1 remaining."
$86\frac{1}{2}$ Write 8 over 7 and think 1 before 3. "How many
$2\overline{)173}$ 2's in 13? 6 and 1 remaining." Write 6 over 3 and 1 for the remainder.

The number by which we divide is called the *divisor*.

Divide.

$2\overline{)46}$	$2\overline{)34}$	$2\overline{)114}$	$2\overline{)706}$
$2\overline{)82}$	$2\overline{)56}$	$2\overline{)178}$	$2\overline{)436}$
$2\overline{)126}$	$2\overline{)78}$	$2\overline{)136}$	$2\overline{)920}$

Dividing by 3

Count by 3's to 30. Learn these numbers. How will they help you divide by 3?

$3\overline{)15}$	$3\overline{)16}$	$3\overline{)21}$	$3\overline{)22}$	$3\overline{)9}$	$3\overline{)10}$	$3\overline{)11}$	$3\overline{)18}$
$3\overline{)19}$	$3\overline{)20}$	$3\overline{)12}$	$3\overline{)14}$	$3\overline{)6}$	$3\overline{)7}$	$3\overline{)8}$	$3\overline{)17}$
$3\overline{)24}$	$3\overline{)25}$	$3\overline{)26}$	$3\overline{)3}$	$3\overline{)4}$	$3\overline{)5}$	$3\overline{)2}$	$3\overline{)29}$

When you divide by 3 the remainder may be 1 or 2.

When you can tell how many times 3 is contained in all numbers to 29, you can divide any number by 3.

Ella, Jane, and Edith have saved 96 pennies. Each saved the same number. How can you find what that number is? Show your work on the board.

Divide.

$3\overline{)36}$	$3\overline{)72}$	$3\overline{)108}$	$2\overline{)110}$
$3\overline{)69}$	$3\overline{)48}$	$3\overline{)162}$	$2\overline{)77}$
$3\overline{)90}$	$3\overline{)84}$	$3\overline{)615}$	$3\overline{)100}$
$3\overline{)159}$	$3\overline{)51}$	$3\overline{)237}$	$2\overline{)618}$

Dividing by 4

Count by 4's to 40. Learn these numbers. How will they help you?

$4\overline{)4}$	$4\overline{)5}$	$4\overline{)6}$	$4\overline{)7}$	$4\overline{)12}$	$4\overline{)13}$	$4\overline{)14}$	$4\overline{)15}$	$4\overline{)16}$
$4\overline{)20}$	$4\overline{)21}$	$4\overline{)22}$	$4\overline{)23}$	$4\overline{)28}$	$4\overline{)29}$	$4\overline{)30}$	$4\overline{)31}$	$4\overline{)32}$
$4\overline{)36}$	$4\overline{)37}$	$4\overline{)38}$	$4\overline{)39}$	$4\overline{)8}$	$4\overline{)9}$	$4\overline{)10}$	$4\overline{)11}$	$4\overline{)17}$
$4\overline{)18}$	$4\overline{)19}$	$4\overline{)24}$	$4\overline{)25}$	$4\overline{)26}$	$4\overline{)27}$	$4\overline{)33}$	$4\overline{)34}$	$4\overline{)35}$

When you divide by 4 the remainder may be 1, 2, or 3.

When you can tell quickly how many times 4 is contained in all numbers to 39, you can divide any number by 4.

A baker made 460 loaves of bread. How can you find how many he should send to each of four grocers, if each takes the same number? Show your work on the board.

In division examples the answer is called the *quotient*. Find the quotients.

$4\overline{)84}$	$4\overline{)188}$	$4\overline{)756}$	$3\overline{)108}$
$4\overline{)168}$	$4\overline{)344}$	$4\overline{)952}$	$4\overline{)416}$
$4\overline{)204}$	$4\overline{)472}$	$4\overline{)607}$	$2\overline{)190}$
$4\overline{)76}$	$4\overline{)156}$	$4\overline{)772}$	$4\overline{)108}$
$4\overline{)52}$	$4\overline{)147}$	$4\overline{)900}$	$3\overline{)210}$

Dividing by 5

Count by 5's to 50, beginning with 0. Learn these numbers. Why?

$5\overline{)5}$	$5\overline{)6}$	$5\overline{)7}$	$5\overline{)8}$	$5\overline{)9}$	$5\overline{)20}$	$5\overline{)21}$	$5\overline{)22}$	$5\overline{)23}$
$5\overline{)24}$	$5\overline{)15}$	$5\overline{)19}$	$5\overline{)16}$	$5\overline{)17}$	$5\overline{)18}$	$5\overline{)10}$	$5\overline{)14}$	$5\overline{)12}$
$5\overline{)11}$	$5\overline{)13}$	$5\overline{)30}$	$5\overline{)29}$	$5\overline{)28}$	$5\overline{)27}$	$5\overline{)31}$	$5\overline{)33}$	$5\overline{)32}$
$5\overline{)34}$	$5\overline{)26}$	$5\overline{)25}$	$5\overline{)45}$	$5\overline{)47}$	$5\overline{)49}$	$5\overline{)46}$	$5\overline{)48}$	$5\overline{)42}$

When you divide by 5, the remainder is never more than what number?

When you can tell quickly how many times 5 is contained in all numbers below 50, you can divide any number by 5.

The children in the first grade saved 210 pennies for the Red Cross. Can you find how many nickels they were worth? Show your work.

Find the quotients.

$5\overline{)65}$	$5\overline{)800}$	$5\overline{)700}$	$4\overline{)500}$
$5\overline{)90}$	$5\overline{)365}$	$5\overline{)865}$	$2\overline{)1{,}000}$
$5\overline{)75}$	$5\overline{)390}$	$5\overline{)509}$	$3\overline{)327}$
$5\overline{)205}$	$5\overline{)426}$	$5\overline{)980}$	$5\overline{)445}$

Dividing by 6

Count by 6's to 60, beginning with 0. Learn these numbers. Why?

Give quotients and remainders. Then you can divide any number by 6.

$6\overline{)6}$	$6\overline{)13}$	$6\overline{)18}$	$6\overline{)15}$	$6\overline{)45}$	$6\overline{)50}$	$6\overline{)55}$	$6\overline{)51}$	$6\overline{)56}$
$6\overline{)9}$	$6\overline{)8}$	$6\overline{)12}$	$6\overline{)21}$	$6\overline{)44}$	$6\overline{)46}$	$6\overline{)43}$	$6\overline{)52}$	$6\overline{)59}$
$6\overline{)16}$	$6\overline{)10}$	$6\overline{)7}$	$6\overline{)14}$	$6\overline{)19}$	$6\overline{)54}$	$6\overline{)48}$	$6\overline{)42}$	$6\overline{)53}$
$6\overline{)17}$	$6\overline{)58}$	$6\overline{)11}$	$6\overline{)49}$	$6\overline{)20}$	$6\overline{)23}$	$6\overline{)25}$	$6\overline{)27}$	$6\overline{)29}$
$6\overline{)30}$	$6\overline{)24}$	$6\overline{)32}$	$6\overline{)26}$	$6\overline{)31}$	$6\overline{)34}$	$6\overline{)33}$	$6\overline{)35}$	$6\overline{)36}$
$6\overline{)40}$	$6\overline{)22}$	$6\overline{)37}$	$6\overline{)28}$	$6\overline{)38}$	$6\overline{)39}$	$6\overline{)41}$	$6\overline{)47}$	$6\overline{)57}$

Mother made 78 cookies. She wants you to find how many each of her family of six may have. How can you do it? Show your work.

Divide.

$6\overline{)96}$	$6\overline{)726}$	$6\overline{)1,476}$	$2\overline{)1,300}$
$6\overline{)80}$	$6\overline{)846}$	$6\overline{)2,208}$	$4\overline{)504}$
$6\overline{)168}$	$6\overline{)780}$	$6\overline{)4,396}$	$3\overline{)1,020}$
$6\overline{)132}$	$6\overline{)624}$	$6\overline{)1,782}$	$5\overline{)3,010}$
$6\overline{)450}$	$6\overline{)384}$	$6\overline{)5,424}$	$6\overline{)1,020}$

Dividing by 7

Count by 7's to 70, beginning with 0. Learn these numbers. Why?

Give quotients and remainders. Then you can divide any number by 7.

$7\overline{)7}$	$7\overline{)9}$	$7\overline{)10}$	$7\overline{)8}$	$7\overline{)12}$	$7\overline{)11}$	$7\overline{)13}$	$7\overline{)21}$	$7\overline{)25}$
$7\overline{)23}$	$7\overline{)24}$	$7\overline{)14}$	$7\overline{)18}$	$7\overline{)17}$	$7\overline{)19}$	$7\overline{)15}$	$7\overline{)20}$	$7\overline{)16}$
$7\overline{)22}$	$7\overline{)27}$	$7\overline{)26}$	$7\overline{)5}$	$7\overline{)28}$	$7\overline{)33}$	$7\overline{)30}$	$7\overline{)32}$	$7\overline{)29}$
$7\overline{)38}$	$7\overline{)42}$	$7\overline{)44}$	$7\overline{)47}$	$7\overline{)43}$	$7\overline{)46}$	$7\overline{)35}$	$7\overline{)39}$	$7\overline{)36}$
$7\overline{)40}$	$7\overline{)45}$	$7\overline{)49}$	$7\overline{)48}$	$7\overline{)56}$	$7\overline{)59}$	$7\overline{)54}$	$7\overline{)58}$	$7\overline{)53}$
$7\overline{)50}$	$7\overline{)52}$	$7\overline{)51}$	$7\overline{)55}$	$7\overline{)57}$	$7\overline{)63}$	$7\overline{)64}$	$7\overline{)69}$	$7\overline{)68}$
$7\overline{)65}$	$7\overline{)61}$	$7\overline{)66}$	$7\overline{)3}$	$7\overline{)6}$	$7\overline{)4}$	$7\overline{)1}$	$7\overline{)0}$	$7\overline{)2}$

Frank stayed on his grandfather's farm 84 days. How can you find how many weeks he was there?

Find the quotients.

$7\overline{)84}$	$7\overline{)392}$	$7\overline{)1{,}092}$	$4\overline{)1{,}608}$
$7\overline{)147}$	$6\overline{)595}$	$7\overline{)4{,}956}$	$6\overline{)354}$
$7\overline{)280}$	$7\overline{)651}$	$7\overline{)2{,}882}$	$5\overline{)1\,700}$
$7\overline{)168}$	$7\overline{)500}$	$7\overline{)2{,}303}$	$7\overline{)2{,}163}$

Dividing by 8

Count by 8's to 80, beginning with 0. Learn these numbers. Why?

Give quotients and remainders. Then you can divide any number by 8.

8)16	8)20	8)14	8)6	8)17	8)19	8)15	8)10	8)18
8)21	8)22	8)39	8)36	8)31	8)37	8)33	8)35	8)38
8)63	8)12	8)48	8)45	8)42	8)47	8)43	8)41	8)44
8)46	8)49	8)50	8)56	8)59	8)51	8)55	8)53	8)57
8)52	8)13	8)54	8)58	8)72	8)75	8)79	8)73	8)78
8)74	8)76	8)71	8)15	8)77	8)24	8)27	8)25	8)29
8)23	8)28	8)11	8)26	8)30	8)7	8)64	8)68	8)65

Father bought a box of 128 oranges. Allowing 8 for a day, can you find how many days they will last?

Find the quotients.

8)88	8)600	8)7,776	7)651
8)400	8)376	8)1,379	5)1,500
8)336	8)752	8)1,656	6)1,500
8)744	8)674	8)3,416	8)1,504

Dividing by 9

Count by 9's to 81, beginning with 0. Learn these numbers. Why?

Give quotients and remainders. Then you can divide any number by 9.

$9\overline{)18}$	$9\overline{)16}$	$9\overline{)20}$	$9\overline{)24}$	$9\overline{)23}$	$9\overline{)25}$	$9\overline{)14}$	$9\overline{)17}$	$9\overline{)8}$
$9\overline{)19}$	$9\overline{)27}$	$9\overline{)30}$	$9\overline{)35}$	$9\overline{)28}$	$9\overline{)34}$	$9\overline{)29}$	$9\overline{)32}$	$9\overline{)2}$
$9\overline{)10}$	$9\overline{)15}$	$9\overline{)36}$	$9\overline{)39}$	$9\overline{)42}$	$9\overline{)37}$	$9\overline{)44}$	$9\overline{)38}$	$9\overline{)43}$
$9\overline{)40}$	$9\overline{)11}$	$9\overline{)4}$	$9\overline{)54}$	$9\overline{)59}$	$9\overline{)62}$	$9\overline{)60}$	$9\overline{)56}$	$9\overline{)5}$
$9\overline{)61}$	$9\overline{)58}$	$9\overline{)16}$	$9\overline{)7}$	$9\overline{)45}$	$9\overline{)50}$	$9\overline{)49}$	$9\overline{)53}$	$9\overline{)48}$
$9\overline{)51}$	$9\overline{)72}$	$9\overline{)5}$	$9\overline{)17}$	$9\overline{)75}$	$9\overline{)63}$	$9\overline{)70}$	$9\overline{)6}$	$9\overline{)8}$
$9\overline{)64}$	$9\overline{)68}$	$9\overline{)3}$	$9\overline{)65}$	$9\overline{)12}$	$9\overline{)69}$			

Nine classes in our school saved their money to buy a Victrola. The cost was \$153. How can you find how much each class should pay?

Divide.

$9\overline{)189}$	$9\overline{)297}$	$9\overline{)4{,}203}$
$9\overline{)270}$	$9\overline{)864}$	$9\overline{)8{,}145}$
$9\overline{)549}$	$9\overline{)738}$	$9\overline{)6{,}642}$
$9\overline{)674}$	$9\overline{)387}$	$9\overline{)5{,}661}$

PROBLEMS

After reading each problem silently, answer the question in a complete sentence.

1. How many 2-cent stamps can I buy for 15 cents? How much money will I have left?

2. How many 5-cent balls can Ruth buy with 18 cents? How much money will be left?

3. Maude had 25 cents. She bought as many 3-cent pencils as she could and put the change into her bank. How many pencils did she buy? How much change did she put into her bank?

4. Mother told Albert to divide 26 cakes among 8 boys, giving each boy the same number, and to bring her all that were left. How many cakes did each boy receive? How many were left?

5. What is the largest remainder one can have when the divisor is 7?

6. Nineteen boys were marching 4 abreast. How many 4's were there? How many boys were left toward the next 4? Make a picture to show you are right.

7. Mother has 21 eggs in her basket. She uses 4 each morning. How many mornings will they last? How many eggs will be left at the end?

8. A baseball nine had $65. They bought shoes and had 2 dollars left. How much did each pair of shoes cost?

9. May buys ribbon at 7 cents a yard. She has 45 cents. How many whole yards can she buy? How much money has she left?

10. Bert needs 15 cents more before he can buy a ball. The ball costs 45 cents. How much money has Bert now?

11. A grocer has 60 pounds of sugar to be put into 8-pound bags. How many bags can he fill? How many pounds of sugar will be left?

12. How many weeks and how many days over are there in a month of 31 days?

13. A table cost $18 and a lamp cost one half as much. How much did the lamp cost? How much did both cost?

14. How long will it take Luella to save 35 cents if she saves a nickel each day?

15. How many 10-cent roses can you buy for 75 cents? How much change will you receive?

16. Jane spent 7 cents and had 29 cents left in her purse. How much money had she at first?

DIVISION DRILL EXAMPLES[1]

Group **1.**

a	*b*	*c*	*d*	*e*
$2\overline{)608}$	$2\overline{)78}$	$3\overline{)156}$	$4\overline{)860}$	$5\overline{)608}$
f	*g*	*h*	*i*	*j*
$6\overline{)726}$	$7\overline{)5{,}040}$	$8\overline{)992}$	$9\overline{)3{,}069}$	$2\overline{)1{,}735}$

Group **2.**

a	*b*	*c*	*d*	*e*
$2\overline{)68}$	$2\overline{)97}$	$3\overline{)684}$	$4\overline{)972}$	$5\overline{)795}$
f	*g*	*h*	*i*	*j*
$6\overline{)3{,}702}$	$7\overline{)406}$	$8\overline{)2{,}080}$	$9\overline{)2{,}115}$	$3\overline{)1{,}791}$

[1] *To the teacher:* Similar groups of drill examples have been placed in the back of the book, pp. 256–263. See *Manual*, p. 167, for suggestions in regard to their use.

Group **3.**

a	*b*	*c*	*d*	*e*
2)46	2)56	3)387	4)1,096	5)1,025
f	*g*	*h*	*i*	*j*
6)1,560	7)1,092	8)7,216	9)981	4)5,620

Group **4.**

a	*b*	*c*	*d*	*e*
2)486	2)73	3)468	4)384	5)645
f	*g*	*h*	*i*	*j*
6)3,609	7)763	8)2,368	9)6,030	5)2,910

Group **5.**

a	*b*	*c*	*d*	*e*
2)820	2)135	3)108	4)292	5)3,750
f	*g*	*h*	*i*	*j*
6)918	7)868	8)1,608	9)2,610	6)3,654

Group **6.**

a	*b*	*c*	*d*	*e*
2)120	2)151	3)162	4)864	5)700
f	*g*	*h*	*i*	*j*
6)504	7)175	8)2,760	9)3,610	7)7,686

Group **7.**

a	*b*	*c*	*d*	*e*
2)460	2)75	3)813	4)952	5)1,545
f	*g*	*h*	*i*	*j*
6)4,920	7)5,140	8)1,672	9)8,424	8)25,728

PROBLEMS WITHOUT NUMBERS

1. Roy had some pencils. He received some more for his birthday. How can you find how many pencils he then had?

2. Susan earned some money every day of the week. How can you find how much she earned in the whole week? Can you tell two ways to find this, if she earned the same amount of money each day?

3. Bushy and Frisky were two little squirrels. Bushy had some nuts. Frisky found them and took some. How can you find how many nuts were left for Bushy?

4. Lucile had a bag of apples. She wanted to divide them equally among some little girls. How can you find how many apples there were for each girl?

5. Robert paid the car fares for his two sisters, his brother, and himself. How can you find how much money he spent?

6. How do you find how many desks are in this room when you know how many rows there are and how many desks there are in each row?

7. How do you find the sum of two numbers?

8. How do you find the difference between two numbers?

9. How do you find the quotient of two numbers?

10. How do you find the product of two numbers?

11. John had some marbles. He gave some of them to his brother. How can you find the number of marbles he had left?

MEASURES OF LENGTH

1. What measure do people talk about when they tell how tall they are? Find a measure one foot long.

2. All the children stand erect. Who is the tallest girl in the class? How many feet tall do you think she is? Find a good place to measure, where your back will be straight. Mark where 1 foot comes; 2 feet; 3 feet; 4 feet.

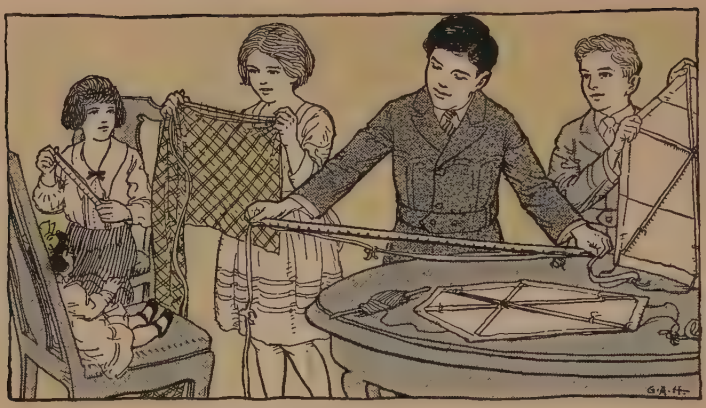
3. Measure the tallest boy in your class. How tall is he? If he is more than four feet tall and less than five feet, how can you tell how tall he is?

4. Into how many inches is your foot ruler divided? Show with the ruler: 1 inch; 2 inches; 4 inches; 6 inches.

5. Who is the shortest girl in the class? How tall do you think she is? Measure and see.

6. Measure one another and find how tall each one is. Keep this in your record-book.

7. Measure one another again in two months. Find how many have grown. Who has grown the most?



12 inches = 1 foot	3 feet = 1 yard
in. ft.	ft. yd.

1. Using your ruler, measure a book. How long is it? How wide? Measure your desk. How long is it? How wide?

2. Using the yardstick, measure the blackboard; the room.

3. How many 3-inch badges can you cut from 12 inches of ribbon?

4. How many 4-inch badges can you cut from a yard of ribbon? Use the yardstick.

5. Mary needs 2 yards of ribbon for her hair. How much will it cost at 20 cents a yard?

6. Mother cut a 5-yard rope into two equal pieces. How long was each piece?

7. How many feet of rope are needed to make a swing which is 10 feet on each side of the seat, if you allow 3 feet for the seat and fastening? Make a picture.

8. Harry's garden is 10 feet long and 4 feet wide. How many feet of fence does he need to enclose it?

9. Florence is making a centerpiece for her mother's birthday. It is 1 yard square. How much lace does she need to put around the edge of it if she allows 12 inches for fullness? Make a drawing.

10. It takes a half yard of cloth for one dress for Bertha's doll. How many such dresses can she make from 6 yards of cloth?

11. Anna had four and one half yards of ribbon in a piece. She cut off 2 yards for her hair and used the rest for a sash. How long was the sash?

Fill the blank spaces.

1 ft. = — in.	6 ft. = — in.
2 ft. = — in.	7 ft. = — in.
3 ft. = — in.	8 ft. = — in.
4 ft. = — in.	9 ft. = — in.
5 ft. = — in.	10 ft. = — in.

Learn to count by 12's to 120.

Some Home Work for You

Use a foot rule or a tape measure. Copy these sentences, filling the blanks with the correct numbers.

1. My bed is — ft. long and — ft. wide.
2. Our dining table is — by —.
3. Our front door is — by —.
4. Our kitchen is — by —.

Words Used in Arithmetic

Words used in *Addition*

642 *addend*
39 *addend*
457 *addend*
1,138 *sum*
+ called *plus*, means *to add*
= means *equal* or *equals*

Words used in *Subtraction*

560 *minuend*
71 *subtrahend*
489 *difference*
− called *minus*, means *to subtract*

Words used in *Multiplication*

87 *multiplicand*
2 *multiplier*
174 *product*
× called *times*, means *to multiply*

Words used in *Division*

$93\frac{6}{8)750}$

750 is the *dividend*. 8 is the *divisor*. 93 is the *quotient*. 6 is the *remainder*.
÷ called *divided by*, means *to divide*

PRACTICE GROUPS[1]

Group **1.**

a	*b*	*c*	*d*	*e*
1,052	1,926	963	297	7,893
−298	2,875	285	46	×6
	3,396	7,963	283	
	6,428	284	1,967	
	4,783	43	5,832	

[1] *To the teacher:* Similar groups for practice have been placed on pp. 263–265. See *Manual*, pp. 182, 183, for suggestions in regard to their use.

Group **2.**

a	*b*	*c*	*d*	*e*
7,037	682	7,983	8,632	8,047
−339	74	2,965	749	×7
	994	4,963	38	
	38	287	694	
	736	4,979	9,872	

Group **3.**

a	*b*	*c*	*d*	*e*
6,027	436	628	2,893	6,932
−369	586	5,973	1,687	×8
	7,993	826	49	
	7,328	34	388	

Group **4.**

a	*b*	*c*	*d*	*e*
3,025	934	3,001	9,604	7,965
−29	26	6,089	8,932	×9
	879	407	4,687	
	1,894	9,193	44	
	8,697	2,684	93	

Group **5.**

a	*b*	*c*	*d*	*e*
1,035	609	286	594	6,472
−76	48	95	28	×6
	396	483	685	
	2,387	2,975	297	
	29	8,624	321	
	406	732	872	

Group **6.**

a	*b*	*c*	*d*	*e*
3,010	3,284	729	5,321	7,934
−79	297	87	496	×7
	328	136	72	
	4,693	5,698	825	
	85	627	7,938	

Group **7.**

a	*b*	*c*	*d*	*e*
8,021	275	687	830	8,679
−79	49	56	796	×8
	823	822	725	
	496	973	483	
	739	486	972	
	54	27	563	

Group **8.**

a	*b*	*c*	*d*	*e*
2,020	2,346	9,562	146	7,629
−36	9,725	8,087	929	×9
	8,462	5,973	8,779	
	2,983	296	884	

Group **9.**

a	*b*	*c*	*d*	*e*
3,120	675	287	5,972	5,968
−79	298	99	6,973	×6
	7,846	596	589	
	3,972	68	2,876	

ROMAN NUMERALS — I–XII

1. Read the numerals on the clock faces.

2. In each picture, to what numeral is the small hand pointing? To what is the large hand pointing?

3. What letters did the Romans use in writing 10, 5, 3, 6, 12, 9, 2, 8, 11, 4, 1?

4. When I is written *before* V or X, how does it affect the value? When I is written *after* V or X, how does it affect the value?

5. Read these numerals.

X IV IIII VI XI V VIII III IX

TIME PROBLEMS

A.M. means *before noon;* P.M. means *after noon.*

Notice in the problems how numbers that tell hours are separated from numbers that tell minutes. 8:45, meaning 45 minutes after 8, is read "eight forty-five."

1. Jack needs 20 minutes to walk to school. When must he start, to get there at 9 A.M.? Clock I on page 114.

2. Father walks to the station in 10 minutes. At what time must he leave the house to catch an 8:45 train?

3. Mary was in school from 9 A.M. until 12:30 P.M. How long was she there? Clock IV.

I

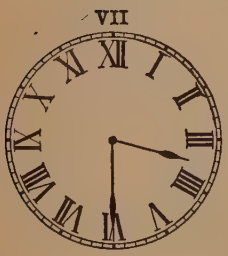
II

III

IV

V

VI


VII

VIII

IX

X

XI

XII

4. Roy's class closes at 3 P.M. He waits for his brother, who does not leave his class until 3 : 30. How long must Roy wait? Clock VII.

5. A train leaves a station at 12 : 15 and arrives at the next stop at 12 : 45. How long between those two stations? Clock V.

6. Lena goes to play with Lillian for 2 hours. She arrives at 12 : 15 P.M. What time must she leave for home? Clock XII.

7. School begins at 9 o'clock. When we have had 15 minutes for opening, 20 minutes for reading, and 10 minutes for spelling, what time is it? Clock I.

8. A clock is 25 minutes fast. When the clock says 3 : 30, what time is it by the right time? Clock VII.

9. Father's watch gains 2 minutes an hour. How much does it gain between 6 A.M. and 6 P.M.? Clock X.

10. We have 15 minutes recess in the morning and 10 minutes in the afternoon. How much less than a half hour is that every day?

11. If Joe is ten minutes late to school each morning, how much time does he lose in one school week? How much less than an hour is that?

12. May has 2 half-hour music lessons each week. How many hours of music does she have in 4 weeks?

13. We have dinner at 6 : 30. If father is 45 minutes late, at what time does he eat his dinner? Clock XI.

14. Bill went to church at 10 : 45. Church began at 11. How long was he there before church began?

15. Jane practiced her music from 2:15 until 2:50. How many minutes did she practice? Clock XII.

16. At the rate of 20 miles an hour, how far will an automobile travel from 9 A.M. until noon? Clock II.

17. Ned has breakfast at 7:15. School begins at 8:45. How long has he between breakfast and school-time? Clock VIII.

18. Patsy can skate to school, on his roller skates, in a quarter of an hour. Joseph takes twice as long as Patsy. How many minutes does it take Joseph to reach school?

19. You went to your friend's house at 12:45. Your mother called for you at 1:30. How long were you at your friend's house? What part of an hour? Clock V.

20. How many trolley cars pass our schoolhouse in an hour, if one goes by every 10 minutes?

21. A trolley car passes my home at 10:30. The next one is due at 10:50. How many minutes must I wait if I just miss the first one? Clock III.

22. Mary used the vacuum cleaner for her mother from 9:15 to 10:05. How long did she work?

23. What part of a day is 12 hours?

24. Teddy went to sleep at 6 o'clock on Monday night, and slept until 6 o'clock, Tuesday morning. How long was he asleep?

25. How many minutes are there in three quarters of an hour? Clock V.

26. Our hall clock strikes every quarter hour. At what times from 9 A.M. to noon does this clock strike?

TWO-FIGURE MULTIPLIER

This is the way to multiply by a two-figure multiplier.

$$\begin{array}{r} 625 \\ \times\ 23 \\ \hline 1875 \\ 1250 \\ \hline 14{,}375 \end{array}$$

First, multiply 625 by 3, writing each product figure in its proper place.

Then, multiply 625 by 2. Be sure to write this first product figure, 0, under the 2 by which you are multiplying and to keep all figures in straight columns. Then draw a line and add the numbers between the lines. Each of these numbers is a part of the product. They are called *partial products*. The product is 14,375.

Multiply.

1. 36 × 42	**4.** 360 × 25	**7.** 8,003 × 49	**10.** 8,635 × 29
2. 42 × 54	**5.** 423 × 56	**8.** 362 × 75	**11.** 3,262 × 48
3. 26 × 31	**6.** 702 × 63	**9.** 2,601 × 64	**12.** 2,703 × 37

PROBLEMS

1. A gallon of ice cream will serve 28 persons. How many persons can be served from 15 gallons?

2. A pound of coffee makes 42 cups of coffee. How many cups can be made from 23 pounds?

3. A loaf of bread makes 24 sandwiches. We used 13 loaves for our picnic. How many sandwiches were made?

4. Tom bought 32 postal savings stamps each month in the year 1922. How many stamps did he buy?

MULTIPLIERS ENDING WITH 0

This is the way to multiply by a multiplier ending with 0.

47 60 2,820	Notice how the multiplier is placed. Write 0 in the product under 0 in the multiplier. Then multiply 47 by 6, writing the product in the correct place.
47 600 28,200	In this example write two 0's in the product under the 0's in the multiplier. Then multiply 47 by 6.

1. 65 ×60	**2.** 29 ×30	**3.** 87 ×90	**4.** 43 ×80
5. 235 ×20	**6.** 469 ×30	**7.** 283 ×50	**8.** 830 ×80
9. 834 ×300	**10.** 972 ×500	**11.** 327 ×600	**12.** 510 ×900

PROBLEMS

1. David has $79 in the bank. His big brother has 20 times as much. How much money has the brother?

2. There were 320 bushels of potatoes raised on Father's farm and 30 times as many on Uncle John's big farm. How many bushels were raised on Uncle John's farm?

3. There are 40 times as many children in a whole school as there are in Miss Bond's class. In Miss Bond's class there are 27 children. How many children are in the whole school?

DRILL EXAMPLES: TWO-FIGURE MULTIPLIER[1]

Group **1.**

a	*b*	*c*
246	6,987	608
×23	×46	×50

Group **2.**

a	*b*	*c*
697	2,859	869
×34	×25	×200

Group **3.**

a	*b*	*c*
932	2,985	341
×53	×42	×90

Group **4.**

a	*b*	*c*
624	3,625	124
×29	×41	×80

Group **5.**

a	*b*	*c*
985	6,285	720
×34	×56	×70

Group **6.**

a	*b*	*c*
496	6,285	328
×45	×19	×600

[1] *To the teacher:* Similar examples for drill have been placed in the back of the book, pp. 266–269. See *Manual*, p. 192, for suggestions in regard to their use.

Group **7.**

a	*b*	*c*
268	6,825	206
×38	×27	×40

Group **8.**

a	*b*	*c*
265	9,750	196
×32	×71	×40

Group **9.**

a	*b*	*c*
326	9,875	508
×18	×34	×90

Group **10.**

a	*b*	*c*
247	8,327	756
×26	×38	×500

Group **11.**

a	*b*	*c*
984	6,902	703
×25	×36	×40

Group **12.**

a	*b*	*c*
753	6,874	345
×35	×29	×80

Group **13.**

a	*b*	*c*
248	8,349	724
×62	×35	×70

MONEY VALUES

1. Name the piece of money which is of least value.
Name all that are made of silver.
Of what is a 5-cent piece made?
What other bills, besides a one-dollar bill, have you seen?

2. How many dimes are equal in value to a dollar bill?

3. How many nickels equal a half dollar?

4. Fred has one each of every different piece of money up to and including $1. How much money has he? Write it. Your teacher will show you how to write it, if you do not know.

5. Julia has two quarters, two dimes, two nickels, and two cents. How much money has Julia? Write it.

6. At the grocery, Nick spent 7 cents. He gave the man a quarter. Count the change as the grocer did. Touch the pieces of money as you count.

7. In the same way count the change from a 17-cent purchase when you give the man 50 cents; from an 18-cent purchase when you pay with a dollar bill.

8. Roger bought 10 cents' worth of pencils, a 25-cent magazine, and a dollar book. How much money did he spend? Write it.

9. Bertha earned a dime every day last week. How much less than a dollar did she earn?

10. Jack took a 2-dollar bill to the store and said, "My mother would like dimes or quarters for this bill." How many of either should he get?

Playing Store

Price List

Milk . .	16¢ a quart	Crackers .	17¢ a box
Soup . .	10¢ a can	Pineapple .	35¢ a can
Bread . .	15¢ a loaf	Apples . .	50¢ a dozen
Coffee .	40¢ a pound	Lemons . .	3 for 10¢

Paul and Ella are playing store. Their mother has given them some things to sell. They made the prices themselves. Read the prices and see what they have to sell.

1. Ella is buying a box of crackers. She gives Paul 25 cents. How does he count the change? How much change does Ella receive?

2. James may buy a pound of coffee and a quart of milk. How much must he pay for both?

3. Find the cost of 3 loaves of bread.

4. Find the cost of half a dozen cans of soup.

5. How much do one half-dozen apples cost at this store?

6. How much do one dozen lemons cost?

7. Ruth may buy a can of soup and one box of crackers. How much money must she pay for both? Count her change from a dollar.

8. The regular price of soup is 12 cents. How much will you save by buying six cans at this store?

9. How much will two cans of pineapple cost?

10. Paul's mother bought two articles and her bill was 57 cents. What do you think she bought?

11. What articles could you buy which would cost exactly 45 cents? Exactly 75 cents? Less than 35 cents?

12. Make a problem about a sale Paul might make.

13. Find the cost of any three articles in this store.

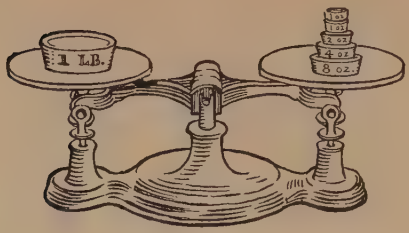
14. The regular price of cocoa is 25 cents. Paul is selling his cocoa for 7 cents less than the regular price. How much must you pay for a box at Paul's store?

15. Mary bought one and one half pounds of coffee. How much did it cost?

16. After Mary spent 60 cents she had 15 cents left. How much money had she at first?

17. John's bill was 33 cents. What do you think he bought?

18. Tonight ask your mother to let you see the bill for her groceries today and see if you can find how much they cost.



MEASURES OF WEIGHT

16 ounces	=	1 pound
oz.		lb.

1. How many ounces are there in a pound of beefsteak?

2. Baby has the juice from half a pound of beef. How many ounces of meat does Mother use for her?

3. Ruth made 2 pounds of candy which she put into half-pound boxes. How many boxes did she use?

4. Mother uses one and one half pounds of butter each week. How much does it cost at 50 cents a pound?

5. There are 8 persons in our family. Each one uses an ounce of butter for dinner. What part of a pound do they all use?

6. How many ounces are there in a quarter of a pound of cinnamon? If a quarter of a pound costs 12 cents, how much is a pound worth?

7. Find the cost of a half pound of 40-cent coffee.

8. A small package of tea weighs a quarter of a pound. How many such packages will make 2 pounds?

9. How many ounces are there in one eighth of a pound?

How Much Do You Weigh?

How old are you? How tall? How much should you weigh? If you do not know, look on a standard card and see.

Weigh one another. How many of you weigh just the amount you should? How many do not weigh enough? What can we do to make ourselves weigh the right amount? Keep all of your weights in a record-book.

Weigh again in a month. How much have you gained or lost?

Mother Goose's Frolic

1. Mother Goose gave a frolic. She invited many of her children. Mistress Mary came and brought 12 pretty maids with her. This was one third of those who came. How many came to the frolic?

2. Mistress Mary brought Mother Goose a basket of flowers from her garden. There were 8 different kinds of flowers and four of each kind. How many flowers were in the basket?

3. Jack and Jill brought a pail of milk. There were 4 pints of milk. How many quarts did they bring?

4. Little Miss Muffet brought a bowl of porridge. She gave one fourth of it to Little Bo-Peep. What part of the porridge did she have left?

5. Jack Horner brought a pie. It had 6 times 9 plums in it. How many plums were in the pie? Jack put in his thumb and took out 5. How many plums were left?

6. Three of Boy Blue's cows were in the corn. This was one third of his cows. How many cows had Boy Blue?

MULTIPLICATION

(Without Pencil)

Multiply.

1.	2.	3.	4.	5.
20 40	30 60	90 70	80 90	70 20
2 6	4 6	7 8	4 3	2 4

6.	7.	8.	9.	10.
40 50	30 60	30 90	20 40	60 60
4 5	8 3	2 4	7 8	5 7

Two times 20 is ——
Five times 30 is ——
Six times 40 is ——

Three times 60 is ——
Two times 50 is ——
Six times 20 is ——

Multiply.

1.	2.	3.	4.	5.	6.
22 33	25 62	34 21	71 62	43 24	81 33
4 3	2 3	2 4	6 4	3 2	3 2

7.	8.	9.	10.	11.	12.
51 32	62 53	71 32	71 82	46 31	82 31
2 3	3 2	6 4	4 3	1 9	3 7

13.	14.	15.	16.	17.	18.
82 22	42 30	41 62	71 45	80 71	33 61
4 3	4 3	5 3	8 1	6 9	3 4

3×42 is ——
4×21 is ——
6×31 is ——

5×60 is ——
2×24 is ——
2×44 is ——

4×25 is ——
3×25 is ——
6×61 is ——

TEST PROBLEMS

(Without Pencil)

Read each problem silently. Then answer the question which it asks.

1. Seven boys and 13 girls are playing tag. How many children are playing?

2. Ralph picked 18 quarts of currants one morning and 7 quarts in the afternoon. How many quarts did he pick?

3. Butter costs 48 cents a pound. One fourth of a pound costs how much?

4. Anna wants to buy a 25-cent book. She has only 9 cents. How much more money must she have before she can pay for the book?

5. Mother used 12 eggs for 3 cakes. Each cake required the same number of eggs. How many eggs were there in each cake?

6. John rode 17 miles on his bicycle in one day. He rode 8 miles in the morning. How far did he ride in the afternoon?

7. William has 45 cents to spend for oranges at 5 cents each. How many oranges can he buy?

8. Eight quarts of milk will fill how many pint bottles?

9. From 6 A.M. until 3 P.M. is how many hours?

10. Ruth spent a 3-weeks' vacation in the country. How many days was she there?

11. How many school days are there in 6 weeks?

12. How many working days are there in 3 weeks?

TEST PROBLEMS

(With Pencil)

Think how to work each problem before you use a pencil.

1. Father bought a barrel of flour which weighed 225 pounds. The barrel weighed 29 pounds. How much did the flour weigh?

2. Four men did a piece of work for $60. If they shared equally, how much money did each man receive?

3. Find the cost of 6 horses at $240 each.

4. Mother's hat cost $15. Her coat cost five times as much. How much did the coat cost?

5. Albert gave away one third of his 90 marbles. How many did he give away?

6. Twenty girls and 18 boys went to Howard's party. How many children were there?

7. A certain boat carries 126 passengers. After 36 persons are on the boat, there is room for how many more passengers?

8. Miss Brown needs 45 arithmetics with which to supply her class. She has 18 arithmetics in the closet. How many must she get from the stock room?

9. Some boys earned a quarter, two dimes, three nickels, and four cents. How much money did they earn?

10. Father bought a $5,000 house and made a cash payment of $2,850. How much did he still owe?

11. A bag of coal weighs 88 pounds. How many pounds are there in 5 such bags?

12. Mother uses 4 pounds of butter each week. How many weeks will it take her to use 56 pounds?

13. Tom earns $405 a year. His father earns $4,005. How much more does his father earn than Tom earns?

14. It is 246 miles from Apex to Newton; Adams is halfway. How far is it from Adams to Newton? Make a drawing.

15. After Louise spent $27 she still had $49 in the bank. How much had she in the bank at first?

16. A man sold for $4,000 a house which cost him $3,750. Did he gain or lose and how much?

17. Father's salary this year is $450 more than it was last year. His last year's salary was $3,575. What is his present salary?

18. A man left $9,855 to be divided equally among his 5 children. How much was each one's share?

19. Find the cost of 8 bicycles if one costs $40.

20. A flag pole stands 45 feet above ground. It is set in the ground 7 feet. How long is the pole?

21. Fred's reader contains 149 pages. When he has read 86 pages, how many pages has he still to read?

22. How much will it cost to buy a 2-cent stamp for each of 49 letters?

23. Bert weighs 82 pounds. His father weighs 175 pounds. What is the difference between their weights?

24. In an orchard there are 75 peach trees, 195 apple trees and 82 plum trees. How many trees are there in the orchard?

THIRD-GRADE TEST GROUPS

These groups will enable you to test yourself on the year's work in arithmetic. Notice that each group has four kinds of examples and a problem.

Group **1.**

a	*b*	*c*	*d*
64	346	785	2)6,984
72	−186	×6	
85			
26		*e*	
87			

A man bought a horse for $165 and sold it for $213. How many dollars did he gain?

Group **2.**

a	*b*	*c*	*d*
289	876	3)3,594	1,874
987	×7		−829
364		*e*	
382			

A man had 260 pigs. He sold one fourth of them. How many pigs did he sell?

Group **3.**

a	*b*	*c*	*d*
875	4)5,328	7,854	2,074
296		×6	−638
430		*e*	
962			
687			

Mr. Jones paid $225 for a horse, $125 for a wagon, and $48 for a set of harness. How much did the whole outfit cost?

Group **4.**

a	*b*	*c*	*d*
6,289	8,539	4,376	5)6,945
972	×8	−3,147	
69			
875		*e*	
6,938	A man had 400 sheep. He sold all but 76 of them. How many did he sell?		

Group **5.**

a	*b*	*c*	*d*
271	8,496	6)7,236	4,297
983	×7		−868
4,726			
695		*e*	
87	Jack stayed at his aunt's home 98 days. How many weeks was that?		

Group **6.**

a	*b*	*c*	*d*
8,723	8,539	6,800	7)35,791
998	×9	− 469	
2,695			
432		*e*	
896	A tank holds 38 gallons. How many quarts does it hold?		

Group **7.**

a	*b*	*c*	*d*
327	18,209	674	8)84,968
45	−6,978	×40	
695			
78		*e*	
483	Three boys own 117 marbles. Each one owns the same number. How many marbles has each boy?		
32			

Group **8.**

a	*b*	*c*	*d*
9,327	2,800	9,687	9)51,318
8,695	−93	×3	
983			
9,321			
999			
38			

e

James has $193 in the bank. He spends $26 for an overcoat. How much money has he left?

Group **9.**

a	*b*	*c*	*d*
7,983	1,090	134	7)14,217
829	−234	×36	
9,976			
398			
4,326			
758			

e

Joseph went to the store for his mother. He spent 36 cents for meat, 29 cents for groceries, and 24 cents for fruit. How much was his bill?

Group **10.**

a	*b*	*c*	*d*
6,987	10,000	3,825	8)30,296
9,875	−6,284	×45	
789			
998			
9,986			
99			

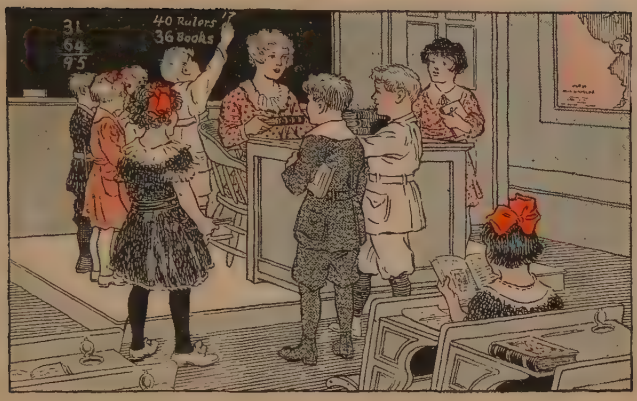
e

John's pony cost $160. He paid one fourth of the price from his own money. How much did John pay?

f

A man's expenses are $14 a day. How much are they for a week?

FOURTH GRADE



Cost of School Supplies

What are the things which we need for our school work?

Who furnishes these things? Who pays for them?

Would it be a good thing to find the cost of these supplies?

Appoint a committee to make a list of all the books we will need for the term. Find the cost of each book. Find the cost of all the books.

Appoint a committee to find the cost of pencils, pens, and paper.

How much did the drawing supplies cost?

After you have found the cost of each kind of supplies, find how much it costs to furnish all the supplies you need for the term.

REVIEW OF THIRD-GRADE WORK

Addition Facts

All addition and subtraction depend upon these facts.

Practice until you can say the sums as fast as you can talk and can see the sums as fast as your eye can travel across the page.

1.	6	1	0	5	5	4	0	1	2	3	9	4	5	2
	2	3	1	9	1	6	5	6	7	6	8	7	6	9
2.	3	1	0	6	7	2	6	1	7	4	2	0	4	9
	8	7	3	8	9	2	9	1	7	1	4	2	4	4
3.	0	2	1	9	4	5	9	3	2	0	6	2	4	8
	6	1	8	3	0	7	1	3	8	8	6	3	8	7
4.	6	0	3	2	8	5	0	3	8	4	9	3	5	9
	7	7	7	5	9	8	9	5	8	5	9	4	5	6

Be sure you know the following facts as well as you do the easier ones.

5.	9	7	8	9	6	8	7	8	7	6	9	7	9	8
	8	6	3	4	5	6	8	5	4	9	7	5	5	4

Adding by Endings

Looking carefully at the endings, practice until you can give these sums as rapidly as your eye can travel across the page.

1.	6	1	2	5	5	4	5	1	2	3
	12	23	41	39	21	36	45	56	97	46

2.	4	9	3	4	8	7	2	6	1	4
	27	38	48	23	46	29	52	69	31	29
3.	5	7	2	10	10	1	9	6	5	8
	26	46	44	32	26	28	43	40	77	39
4.	9	3	3	2	10	6	2	8	10	3
	31	29	43	48	28	26	23	27	37	47
5.	2	10	9	5	7	10	3	8	4	2
	35	47	39	48	36	49	35	28	25	39
6.	6	7	5	7	9	4	9	9	5	8
	25	48	24	59	26	38	82	75	68	43
7.	4	8	7	3	7	9	6	6	3	7
	27	69	35	18	27	84	73	48	79	81

Subtraction

Subtract.

1.	16	15	13	14	12	15	11	14	19	11
	9	7	8	6	3	9	6	7	9	4
2.	10	12	18	16	9	7	16	18	13	11
	3	9	9	7	4	4	8	10	7	3
3.	10	6	11	14	17	8	5	12	7	13
	4	4	9	5	9	8	3	5	0	4
4.	29	32	43	27	46	72	83	55	66	22
	14	16	28	19	33	18	27	39	17	18

Subtract. Check by adding difference and subtrahend.

1.	2.	3.	4.	5.	6.	7.
324	987	462	921	627	982	100
26	385	73	594	113	97	46

8.	9.	10.	11.	12.
2,073	4,023	2,001	7,021	6,274
698	1,974	928	693	29

13.	14.	15.	16.	17.
9,827	7,029	6,660	7,692	9,900
3,264	1,846	4,920	1,385	7,199

Column Addition

Begin at the bottom of the columns; think of the endings and add. Check or prove by adding downward.

I.

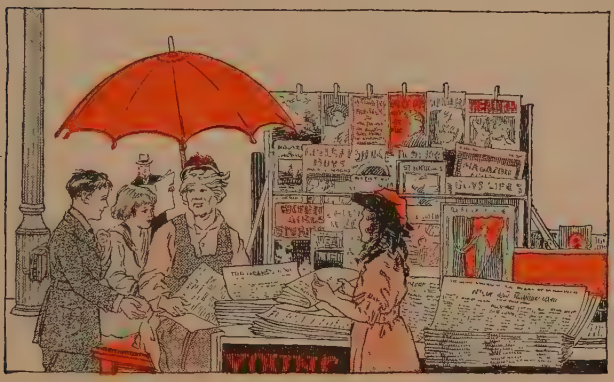
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
6	7	4	2	8	5	9	2	2	5	7
4	2	8	3	5	8	4	8	6	2	7
9	9	3	9	6	6	3	3	8	7	8
2	6	2	7	9	2	2	9	4	3	8
8	9	9	4	7	9	8	7	9	8	9
3	7	8	6	8	3	7	6	5	6	9

II.

1.	2.	3.	4.	5.	6.	7.	8.
29	84	99	85	28	26	99	28
68	96	86	73	34	34	82	44
42	37	27	92	93	97	49	63
39	48	59	65	62	82	64	29
75	32	37	72	84	63	33	85

III.

1.	2.	3.	4.	5.	6.
347	785	296	62	83	793
249	249	483	198	148	28
832	823	29	4	7	493
648	647	8	99	362	68
596	679	742	785	99	79
832	835	690	696	845	599



A News Stand

Find out all you can about prices of newspapers and magazines. Where can you find the price?

Have a magazine day and bring all the different kinds of newspapers and magazines that you can find. Arrange them as you think they should be arranged to sell.

Appoint some one in your class to take charge of your store.

Each member of the class may buy at least one newspaper and one magazine. Pay for what you buy. How much money do you owe? How much change will the salesman give you?

Multiplication Facts

All multiplication and division examples depend upon these facts. Practice until you know the products perfectly.

1.	9	4	8	7	2	9	1	4	6	8
	8	4	6	4	2	9	9	2	3	5
2.	6	5	5	9	2	5	1	2	8	9
	7	5	7	3	7	9	4	6	4	6
3.	4	6	6	8	1	3	3	8	5	8
	5	6	4	2	2	3	5	9	6	7
4.	1	7	7	6	1	4	7	5	8	9
	3	7	3	1	1	3	1	2	3	7
5.	0	8	9	0	0	8	3	5	9	0
	2	8	2	5	1	1	2	3	4	3
6.	6	7	1	7	0	2	4	0	6	3
	9	8	7	6	9	3	6	4	2	4
7.	5	7	4	0	6	5	3	2	7	3
	4	9	7	6	8	8	6	4	2	9
8.	2	3	2	1	4	7	4	3	6	2
	9	7	5	6	8	5	9	8	5	8
9.	5	9	1	9	4	0	1	2	0	3
	1	5	8	1	1	8	5	1	7	1

Give each product and add to it any number from 1 to 8.

Multiplication

Multiply. Carefully go over your work to check it.

1. 26 × 9	**2.** 38 × 7	**3.** 54 × 9	**4.** 29 × 3
5. 57 × 6	**6.** 93 × 8	**7.** 49 × 5	**8.** 149 × 8
9. 207 × 7	**10.** 639 × 5	**11.** 487 × 9	**12.** 396 × 6
13. 301 × 7	**14.** 456 × 4	**15.** 1,092 × 6	**16.** 3,090 × 9
17. 7,459 × 7	**18.** 9,998 × 4	**19.** 6,728 × 5	**20.** 4,963 × 8
21. 8,976 × 8	**22.** 5,796 × 3	**23.** 8,100 × 2	**24.** 5,010 × 4

Division

Give quotients and remainders.

1. $4\overline{)14}$	$3\overline{)29}$	$4\overline{)27}$	$2\overline{)15}$	$9\overline{)80}$	$3\overline{)17}$
2. $7\overline{)54}$	$9\overline{)63}$	$6\overline{)55}$	$4\overline{)23}$	$7\overline{)10}$	$6\overline{)35}$
3. $9\overline{)35}$	$8\overline{)49}$	$6\overline{)34}$	$8\overline{)29}$	$6\overline{)50}$	$7\overline{)54}$
4. $8\overline{)27}$	$9\overline{)34}$	$7\overline{)21}$	$9\overline{)56}$	$7\overline{)34}$	$9\overline{)21}$

5. $5\overline{)24}$	$6\overline{)29}$	$7\overline{)35}$	$4\overline{)17}$	$6\overline{)19}$	$3\overline{)15}$
6. $7\overline{)15}$	$9\overline{)38}$	$6\overline{)27}$	$3\overline{)20}$	$5\overline{)30}$	$6\overline{)38}$
7. $9\overline{)72}$	$5\overline{)29}$	$4\overline{)13}$	$5\overline{)26}$	$8\overline{)30}$	$6\overline{)46}$
8. $5\overline{)45}$	$7\overline{)49}$	$6\overline{)25}$	$9\overline{)17}$	$7\overline{)15}$	$3\overline{)27}$

Divide. Check by multiplying the quotient by the divisor.

1. $2\overline{)234}$	**2.** $3\overline{)965}$	**3.** $5\overline{)278}$	**4.** $8\overline{)496}$
5. $9\overline{)9,234}$	**6.** $6\overline{)7,293}$	**7.** $4\overline{)8,972}$	**8.** $7\overline{)6,758}$
9. $9\overline{)3,297}$	**10.** $7\overline{)4,698}$	**11.** $6\overline{)6,923}$	**12.** $4\overline{)9,824}$
13. $8\overline{)9,325}$	**14.** $3\overline{)9,768}$	**15.** $2\overline{)3,295}$	**16.** $5\overline{)4,832}$
17. $6\overline{)7,970}$	**18.** $7\overline{)5,029}$	**19.** $9\overline{)3,093}$	**20.** $4\overline{)7,601}$
21. $5\overline{)27,555}$	**22.** $3\overline{)92,683}$	**23.** $2\overline{)79,428}$	**24.** $8\overline{)69,275}$

Try again the Test Groups on pages 130–132.

If you can do those accurately, you are ready for some new work.

Some Home Work

1. Write 6 division examples in which one figure of the quotient is 0. Use 5, 6, 7, 8, 9 as divisors. Do not use more than four figures in each dividend.

2. Make a little test for your class. In it put one addition, one subtraction, one multiplication, and one division example. Do not use more than four figures in any number. Find the answer to each example and be sure these answers are correct. Ask your teacher to select the best test and to let all the children in the class try it.

UNITED STATES MONEY

THE UNITED STATES MINT IN PHILADELPHIA

This is where some of our money is made. Find out all you can about how money is made. Tomorrow we will talk about it.

Here are the signs we use in writing numbers which mean dollars and cents.

$ is the sign for dollars.

This . called *decimal point,* is the sign for cents.

Read the following.

1. $25.00	**2.** $ 7.08	**3.** $ 50.08	**4.** $ 16.00
$45.00	$ 8.02	$ 13.03	$ 5.08
$10.25	$ 20.01	$ 7.07	$113.03
$ 9.38	$116.06	$107.09	$ 62.04
5. $ .03	**6.** $ .07	**7.** $.30	**8.** $ .15
$ .01	$ .02	$.49	$ .17
$1.00	$5.00	$.09	$1.08
$ .20	$1.10	$.05	$ .42

Write, using dollar sign and decimal point.

1. One dollar thirty-three cents.
2. Two dollars two cents.
3. Thirty-one cents.
4. Six cents.
5. One dollar (two ways).
6. Three cents.
7. Nine cents.
8. Nineteen cents.
9. Sixty dollars sixty cents.

Write the following in correct form for addition. Find the sum.

1. \$3.02, \$19.00, \$7.08, \$.03, \$.05, \$.40, \$1.04.
2. \$5.00, \$2.00, \$20.00, \$3.01, \$.09, \$26.

Write the following in correct form for subtraction. Find the difference.

1. \$5.00 − \$3.27
2. \$6.00 − \$ .39
3. \$ .98 − \$ .72
4. \$500.00 − \$7.69
5. \$ 38.02 − \$3.08
6. \$ 41.09 − \$ .05

Write the following in correct form for multiplication. Find the product.

1. \$2.87 × 4
2. \$3.09 × 7
3. \$ .90 × 5
4. \$7.39 × 9
5. \$ 300 × 8
6. \$ 76.09 × 6
7. \$ .08 × 5
8. \$ 32.09 × 3
9. \$10.10 × 15
10. \$ 7.07 × 10
11. \$60.08 × 30
12. \$56.02 × 72

Write the following in correct form for division. Find the quotient.

1. \$ 8.26 ÷ 7	7. \$15.20 ÷ 5	13. \$.09 ÷ 3
2. \$ 90.81 ÷ 9	8. \$30.08 ÷ 8	14. \$.24 ÷ 4
3. \$ 13.08 ÷ 3	9. \$24.00 ÷ 6	15. \$.08 ÷ 2
4. \$ 45.18 ÷ 9	10. \$37.10 ÷ 7	16. \$ 63 ÷ 5
5. \$129.06 ÷ 6	11. \$ 7.92 ÷ 6	17. \$15.50 ÷ 5
6. \$ 40.08 ÷ 8	12. \$17.36 ÷ 2	18. \$60.08 ÷ 8

1. Multiply sixty-four dollars nine cents by 8.

2. Subtract thirty-three dollars thirty-seven cents from one hundred dollars.

3. Find the sum of twenty-five dollars eight cents; sixty dollars three cents; eighty-two dollars fifty-three cents; twenty dollars.

4. Divide thirty-nine dollars forty-five cents by 3.

PROBLEMS IN UNITED STATES MONEY

(With or without Pencil)

1. Thomas opened his bank and found he had a one-dollar bill, a quarter, two dimes, five nickels, and six pennies. How much money had he in his bank?

2. After Jack spent \$.10 for a top, he had a dime and a quarter left in his pocket. How much had he at first?

3. Lucile spends \$.15 a day at school for her lunch. How much does her lunch cost each school week?

4. Genevieve paid \$.10 for her notebook, \$.04 for her eraser, \$.05 for her pad, and \$.09 for ink. How much did she spend?

5. Thomas earned half enough money to pay for his overcoat which cost $18.50. How much money did he earn?

6. One new automobile tire cost $10. How much will it cost father to buy a set of new tires for his Ford car?

7. Our 8-pound roast for dinner cost $3.04. How much did it cost a pound?

8. What is the change from a 5-dollar bill after paying $3.75 for three dinners at the hotel?

9. Carnations are $1.50 a dozen. How much will half a dozen carnations cost?

10. The fare to the city is $.40. James pays half fare. What is the fare for James and his mother?

11. Kenneth had $2.75 in his bank. His mother borrowed $1.50 to pay the laundry bill. How much money had he left?

12. Our telephone costs $2 a month. How much does it cost for the year?

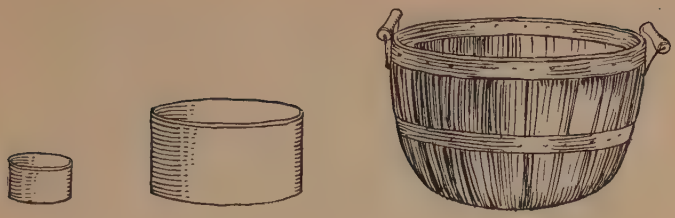
13. Find the cost of 9 quarts of milk at $.16 a quart.

14. One week mother made ice cream, so her milk bill was larger than usual. She used 15 quarts at $.16 a quart. How much was her bill?

15. Peter spent one fourth of his money to go to the circus. His ticket cost $.25. How much money did he have before he bought his ticket?

16. After Louise bought her 25-cent ticket, she had $1.00 left. How much money did she have at first?

17. Ruth went to the circus too. She spent $.25 for her ticket, $.15 for peanuts, and $.20 for a balloon. How much did all cost her?



DRY MEASURE

8 quarts = 1 peck	4 pecks = 1 bushel
qt. pk.	pk. bu.

1. What do we buy by the bushel?

2. What do we buy by the peck?

3. How many quarts are equal to 1 peck? Prove it by measuring.

4. How many pecks of apples can be sold from a bushel of apples? Prove it.

5. Joseph bought half a peck of potatoes. How many quarts had he?

6. Onions are 20¢ a quart. How much is that for a peck?

7. How many quarts of chestnuts are there in a bushel?

8. How many quart baskets can be filled from half a peck of cherries?

9. From a bushel basket of apples, 4 quarts were sold. How many quarts were left in the basket?

10. John paid $1.40 for a bushel of potatoes. At that rate, how much does a peck cost?

11. Jack earned five cents a quart for picking currants. He picked a peck. How much money did he earn?

Buying Vegetables

In this price list, *per* means *for each.*

String beans . .	9¢ per qt.	Celery . .	20¢ per bunch
Onions	8¢ per qt.	Peas	8¢ per qt.
Beets . .	3 bunches for 10¢	Cabbage . . .	4¢ per lb.
Potatoes . .	40¢ per pk.	Apples . . .	3 qt. for 25¢
Spinach . . .	30¢ per pk.	Lettuce . .	15¢ per head
Lima beans . .	10¢ per qt.	Corn . . .	40¢ per dozen
Tomatoes . . .	6¢ per lb.	Carrots . .	7¢ per bunch

Find the amount each must pay for vegetables.

Mrs. Robinson:
- 4 qt. string beans
- Half dozen corn
- 1 pk. potatoes

Mrs. Jackson:
- 1 pk. spinach
- 4 qt. peas
- 3 qt. onions

Mrs. White:
- 6 bunches beets
- Half pk. potatoes
- 3 qt. apples

Mrs. Adams:
- 4 lb. cabbage
- 1 dozen corn
- Half pk. spinach

Mrs. Porter:	Mrs. Anderson:
2 qt. onions	5 qt. peas
Half pk. potatoes	6 qt. apples
3 qt. apples	1 pk. potatoes
4 qt. lima beans	4 qt. lima beans
2 bunches celery	1 bunch celery
1 head lettuce	3 lb. cabbage

1. Select any four vegetables which you like, play that you buy enough for dinner, and find how much your bill is.

2. How many quarts of apples can you buy for a half-dollar?

3. How many quarts of lima beans can you buy for $1?

4. Six bunches of carrots would cost as much as how many pounds of tomatoes?

5. Play that you are buying a peck of potatoes, a bunch of celery, and one other vegetable. Your whole bill is $.80. What is the third vegetable which you buy?

6. How much change do you get from $1 if you buy 5 quarts of peas? How much spinach can you buy with this change?

DRILL EXAMPLES

Group 1.

a	*b*	*c*	*d*
$22.06	$729.38	$65.38	$6\overline{)\$725.34}$
39.85	−30.79	×9	
23.79			
6.84			
72.83			

e

A dealer bought 5 bicycles for $39.75 each. How much did they cost?

Group **2.**

a	*b*	*c*	*d*
\$40.08	\$327.09	\$75.06	9)\$327.51
9.22	−99.83	×8	
60.75			
9.30			
87.96			
59.32			

e

James's winter outfit cost as follows: overcoat, \$24.98; suit, \$32.49; hat, \$2.50; underwear, \$10; shoes, \$6.95. Find the amount of his bill.

Group **3.**

a	*b*	*c*	*d*
\$70.85	\$1,000	\$402.79	7)\$326.55
29.64	−298	×7	
3.80			
.90			
5.06			
28.39			

e

A man left \$20,694 to be divided equally among his 6 sons. How much did each receive?

Group **4.**

a	*b*	*c*	*d*
\$301.29	\$200.00	\$296.79	5)\$725.50
68.72	−69.85	×6	
9.08			
.59			
163.27			

e

Julius did the marketing for Mother on Saturday. Find how much money he spent. Meat cost \$1.29; vegetables, \$.64; fruit, \$.75; groceries, \$2.09.

Group **5.**

a	*b*	*c*	*d*
$279.36	$623.79	$30.97	4)$1,687.32
49.85	−198.39	×25	
2.69			
.09			
7.90			

e

A newsboy's papers for the week cost him $7.80. He sold them for $10. How much did he gain?

Group **6.**

a	*b*	*c*	*d*
$38.79	$900.06	$29.39	7)$3,003
9.86	−732.80	×9	
39.65			
83.60			
9.06			

e

A grocer paid 32 cents a pound for cheese and sold it for 41 cents. How much did he gain on each pound? How much on ten pounds?

Group **7.**

a	*b*	*c*	*d*
$ 60.09	$732.40	$72.85	7)$275.31
30.92	−29.36	×15	
4.87			
39.62			
145.80			

e

Jack's shoes cost one third as much as his coat. His coat cost $18.00. What was the price of his shoes?

Group **8.**

a	*b*	*c*	*d*
$60.27	$326.30	$32.49	6)$732.48
9.08	−59.80	×7	
3.00			
.79			
9.29			
.06			

e

Father had $2,079.25 in the bank. He gave a check for a bill of goods costing $750.00. How much money remained in the bank?

Group **9.**

a	*b*	*c*	*d*
$ 36.27	$600.00	$40.08	9)$283.41
49.83	−25.34	×8	
267.82			
4.09			
37.25			

e

A shoe dealer sold 25 pairs of $6.98 shoes in one day. How much money did he receive for them?

Group **10.**

a	*b*	*c*	*d*
$32.49	$293.75	$40.89	4)$205.20
6.87	−18.29	×5	
98.35			
8.02			
92.75			

e

Coal costs $10.25 a ton. Find the cost of 6 tons of coal.

f

Seven boys went camping. Their expenses for food and a tent were $49.35. How much should each pay?

Group **11.**

a	*b*	*c*	*d*
\$45.27	\$435.20	\$80.07	7)\$342.65
69.38	−175.00	×25	
9.87			
5.96			
30.09			

e

Find the cost of 3 dolls at ninety-eight cents each and 3 go-carts at one dollar twenty-five cents each.

Group **12.**

a	*b*	*c*	*d*
\$62.89	\$623.45	\$35.62	9)\$810.81
4.96	−97.89	×7	
90.85			
2.78			
3.69			

e

For an entertainment, there were 55 tickets sold at 25 cents each, and 75 tickets at 15 cents each. How much was received from the sale of tickets?

Group **13.**

a	*b*	*c*	*d*
\$30.27	\$60.27	\$49.37	7)\$354.20
59.38	−.38	×9	
2.95			
.08			
9.00			

e

Mother used 6 subscriptions to a magazine for Christmas gifts. How much did she pay if the magazine costs \$1.50 a year?

Group **14.**

a	*b*	*c*	*d*
\$32.46	\$35.00	\$28.75	8)\$452.64
7.98	−27.36	×8	
3.27			
.09			
14.98			

e

A dozen photographs cost \$6.00. How much is that for each one?

Group **15.**

a	*b*	*c*	*d*
\$62.75	\$82.00	\$30.25	5)\$723.60
3.98	−81.24	×18	
4.06			
23.01			
79.64			
2.49			

e

Mother bought a coat which was marked down from \$25 to \$18.50. How much did she save?

Group **16.**

a	*b*	*c*	*d*
\$20.82	\$32.34	\$.27	4)\$623.56
9.78	−17.89	×38	
84.63			
9.09			
.08			

e

Find the cost of half a dozen oranges at 50 cents a dozen, 1 dozen bananas at 30 cents a dozen, and 3 grapefruit at 3 for a quarter.

f

Helen has saved \$5.28. Her father is going to give her enough more for her to have \$10 to spend for Christmas gifts. How much will he give her?

Group **17.**

a	*b*	*c*	*d*
$ 27.35	$98.98	$.75	7)$638.40
100.02	−2.09	×25	
53.00			
.75			
62.00			

e

Father bought Jack's shoes at a sale for $5.95. They had been $8.75. How much money did he save?

Group **18.**

a	*b*	*c*	*d*
$502.79	$732.40	$.62	9)$6,381.54
69.35	−69.89	×50	
4.39			
.92			
9.68			
.03			

e

An apartment rents for $28 a month. How much is the rent for one year?

Group **19.**

a	*b*	*c*	*d*
$63.27	$60.27	$62.59	9)$346.23
5.96	−59.38	×8	
98.35			
2.64			
7.32			

e

There are 12 dozen oranges in a box. How much are they worth at 50 cents a dozen?

f

Dick's brother is saving his money to buy a radio set which costs $25. He has saved $9.75. How much more does he need?

Group **20.**

a	*b*	*c*	*d*
$ 62.75	$28.49	$500.25	8)$639.76
198.34	−17.68	×9	
26.79			
4.63			
.80			
9.00			

e

Sister's salary is $125 a month. How much is her salary for a year?

Group **21.**

a	*b*	*c*	*d*
$53.65	$46.23	$40.86	6)$793.68
2.99	−29.19	×7	
93.84			
6.02			
.07			
9.08			

e

A man's salary is $6,000 a year. His expenses last year were $4,395. How much did he save?

Group **22.**

a	*b*	*c*	*d*
$50.82	$935.27	$.29	6)$732.42
9.07	−89.39	×48	
.08			
3.65			
9.27			
83.94			

e

Jack's pony cost $125, the harness cost $25.50, the cart $29.35, and the blankets $5.75. Find the total cost.

f

After Mary paid $1.95 for a Kiddie Kar for her brother's birthday gift she had $2.87 left. How much money had she before she bought the gift?

Group **23.**

a	*b*	*c*	*d*
$27.96	$573.60	$72	4)$982.60
8.49	−18.49	×23	
83.27			
.65			
9.99			
20.38			

e

Big brother has an allowance of $1.25 a week. How much is that for four weeks?

Group **24.**

a	*b*	*c*	*d*
$38.25	$132.65	$33.42	7)$934.36
9.92	−99.49	×9	
63.27			
5.08			
.93			
6.02			

e

George paid $1.25 for his geography, $.30 for his speller, $.75 for his arithmetic, and $.80 for his English book. How much did all his books cost?

Group **25.**

a	*b*	*c*	*d*
$69.38	$80.07	$85.49	8)$697.36
99.08	−17.99	×9	
9.84			
93.06			
.09			

e

The 3 pounds of beefsteak for dinner cost $1.35 cents. What was the price per pound?

f

Miss White took the 39 children in her class for a day at the beach. At 15 ¢ each, how much was the fare for all the children?

Group **26.**

a	*b*	*c*	*d*
\$75.90	\$173.80	\$32.40	3)\$729.60
9.93	−19.79	×9	
.87			
8.49			
79.85			
.91			

e

How much will a half pound of 90-cent tea cost?

Group **27.**

a	*b*	*c*	*d*
\$34.26	\$70.39	\$96	4)\$492.60
9.79	−29.93	×200	
98.25			
9.09			
.39			
4.63			

e

Marian's mother paid \$13.50 for her music lessons. That gave Marian 9 lessons. How much did each one cost?

Group **28.**

a	*b*	*c*	*d*
\$50.32	\$73.92	\$70.09	7)\$693.84
429.82	−29.98	×8	
93.65			
2.83			
9.99			

e

The fare to the city is \$1.39. How much change does Father get from a \$5 bill, if he buys one ticket?

f

Father's new automobile cost \$1,150. He paid \$15 extra for a bumper, \$6.75 for a mirror, \$4.25 for a clock, and \$20.50 for a spare tire. How much was the whole cost?

United States Post Office

What does our post office do for us?

Visit your post office and find out all you can about the different things which are done for us by your postmaster and his helpers.

Divide the class into four groups.

Group I — Stamps

Find out all you can about stamps. Where can we use a 1-cent stamp? A 2-cent stamp? Find out what other stamps we can buy. Collect different kinds of used stamps.

What do we mean by a special-delivery stamp? How much does it cost? What can we use in place of a special-delivery stamp? How do we have to mark our letters if we do this?

Group II — Registering Letters and Parcels

What do we mean by registering a letter? Why do people register letters? Find out all you can about how to register a letter.

How much does it cost to register one letter or parcel? If the letter or parcel is lost, how much will the Government pay to the sender?

Group III — Money Orders

What is a money order? How can you send money by using a money order? What do you mean by an application blank? Learn how an application blank should be filled.

How much does it cost to send money by a money order?

Group IV — Parcel Post

Why do we have a parcel-post department in our post office? Where can we send parcels by mail? Find out what we mean by zones. What do we mean by insuring a parcel? How much does it cost?

Have a post office in your school. Let each group take charge of the department it has studied about and teach the others in the class all it has learned about the post office.

Make original problems about your post office.

A Drawing Lesson

1. Draw an oblong and divide it into two equal parts. What do you call each part? How many halves are there in the whole oblong?

2. Draw lines across the oblong and divide it into 4 equal parts. What is each part called?

3. Using colored crayon show that two fourths equal one half.

4. Now color the next fourth.

5. This shows that two fourths and one fourth equal how many fourths?

6. Color the remaining fourth. The whole oblong equals how many fourths?

7. Draw another oblong of the same size and divide it into 3 equal parts. What is one of these parts called?

8. Show one third of a circle.

9. Show two thirds of a circle.

APPLE PIE

BERRY PIE

PEACH PIE

HALVES, FOURTHS, EIGHTHS

1. Into how many equal parts is the apple pie divided? What is each part called? How do you write this part?

2. How many halves make one whole pie?

3. Into how many equal parts is the berry pie divided? What is each part called? How do you write this part?

4. How many fourths make one whole? One half?

5. Into how many equal parts is the peach pie divided? What is each part called? How do you write this part?

6. How many eighths does it take to make one whole? To make one fourth? To make one half?

7. How many eighths are there in a whole orange?

8. How many eighths are there in half a pie?

9. How much is one half of 6? of 10?

10. By what do you divide a number to find one half of it?

11. How much is one fourth of 4? of 12?

12. By what do you divide a number to find one fourth?

13. By what do you divide a number to find one eighth of it?

PROBLEMS

1. Find $\frac{1}{2}$ of these numbers: 2, 8, 4, 6, 12, 14, 20.

2. Find $\frac{1}{4}$ of these numbers: 8, 4, 12, 20, 16, 40.

3. Find $\frac{1}{8}$ of these numbers: 16, 24, 32, 40.

4. There are 12 pupils in a reading class and one half of them are girls. How many girls are there in the class?

5. One fourth of the pupils in the reading class have new books. How many pupils have new books?

6. There are 20 other pupils in the room. One half of them are working on their arithmetic. How many pupils are doing their arithmetic?

7. One fourth of these 20 pupils are writing their spelling words. How many are doing their spelling lessons?

8. There are 16 small pictures on the front blackboard. Miss Snow put up one half of them this morning. How many did she put up?

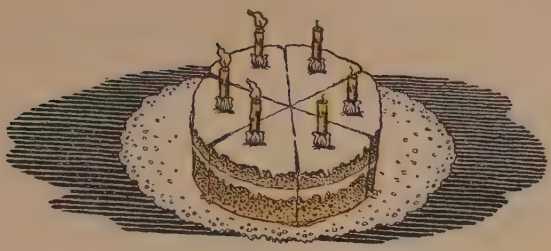
9. The children brought $\frac{1}{8}$ of the 16 pictures. How many of the pictures did the children bring?

10. The reading table near the book shelves is 6 feet long and one half as wide. How wide is the table?

11. There were 24 books on the shelves this morning, but the children are now using one eighth of them. How many books are being used? How many are left on the shelves?

12. John lost seven eighths of his kite string. What part of the string was left? Make a picture.

13. At home tonight cut something into eighths and be prepared to tell us about it tomorrow.



THIRDS, SIXTHS

1. This birthday cake is for a girl how many years old?
2. Into how many equal pieces has this cake been cut?
3. How many children may each have a piece?
4. What part of the cake may each child have?
5. How many sixths are there in a whole cake?
6. How many sixths are there in a third of a cake?
7. How many sixths are there in a half of a cake?
8. Mother lighted the candles, giving each child one chance to try to blow them all out. Julia blew out half of them. How many candles did she blow out?
9. Ruth blew out a third of them. How many was that?
10. Baby blew out only one candle. What part of the candles did she blow out?
11. John blew out two candles. What part of the candles did he blow out?
12. How much is one third of 6? of 12?
13. By what do you divide to find one third of a number?
14. How much is one sixth of 12? of 6?
15. By what do you divide to find one sixth of a number?

PROBLEMS

1. Find $\frac{1}{3}$ of these numbers: 12, 18, 6, 9, 3, 15, 30.

2. Find $\frac{1}{6}$ of these numbers: 18, 6, 12, 24, 30.

3. Which is larger, $\frac{1}{6}$ of 30 or $\frac{1}{3}$ of 18?

4. On the way to school Mary goes through Pine Street. This is a short street with 12 houses on it. One third of these houses are painted white. How many white houses are there on Pine Street?

5. Going along Central Street she counted 15 automobiles. One third of these were going toward the school. How many of these automobiles were going in that direction?

6. Mary saw 24 birds on the way to school. One sixth of these were robins. How many robins did Mary see?

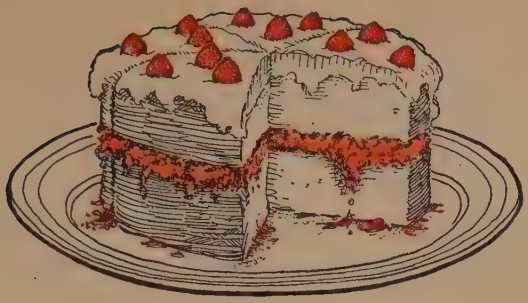
7. In a store window Mary saw a box of paper for 30 cents and a pad of paper for one third as much. What was the price of the pad?

8. Mary had 12 cents to spend for luncheon. One sixth of this amount was in pennies. How many pennies did Mary have?

9. On the school grounds Mary joined a group of 9 girls. One third of them sit in Mary's room. How many of these girls are in Mary's room?

10. When Mary walks to school it takes her 18 minutes, but when her father takes her in his automobile, it takes only one sixth as long. How long does it take to ride to school?

11. Mary spends one third of each year at her grandmother's home on the farm. How many months is she there?



FIFTHS

1. If anything is divided into five equal parts, what is one of the parts called? What are two of the parts called?

2. Mother cut this strawberry shortcake into five equal pieces and gave Elmer one piece. What part of the cake did he have? What part of the cake was left?

3. How many fifths are there in a whole?

4. Which is larger, one half the shortcake or two fifths?

5. How much is five fifths of the shortcake?

6. How do you find one fifth of any number?

7. How much is $\frac{1}{5}$ of 10? of 5? of 15? of 20?

8. John bought some nuts and gave one fifth of them to his squirrel each day, until the nuts were gone. How many days did they last?

9. Tom earned 25 cents one Saturday and spent one fifth of it for a pencil. How much did the pencil cost?

10. It is 20 miles from Arthur's house to the city. One fifth of the distance is state road. How many miles of state road are there on the trip?

1. Draw an oblong and divide it into five equal parts. What is each part called?

2. Draw a horizontal line cutting each fifth into two equal parts. Count the parts. What is each part called?

3. How many tenths equal one fifth? two fifths? three fifths? four fifths?

4. One whole equals how many fifths? how many tenths?

5. How many tenths equal one half?

6. A cake was divided into ten equal pieces. Jack ate three of these pieces. What part of the cake did he eat? What part was left?

7. Arthur agreed to distribute some hand bills for the grocer one Saturday. He gave out nine tenths of them in the morning. What part was left for the afternoon?

8. One half equals how many fourths? how many sixths? how many eighths? how many tenths?

9. How did you find one half of a number? one third of a number? one fifth of a number?

10. How will you find one tenth of a number?

11. How much is one tenth of 20?

12. Find $\frac{1}{10}$ of 30, 10, 50, 60, 80, 100.

13. How much is one tenth of a dollar?

READING AND WRITING NUMBERS

Read these numbers; first read in columns; then read in lines, across the page.

a	*b*	*c*
(1) 1,082	(1) 10,031	(1) 300,021
(2) 9,621	(2) 60,029	(2) 406,003
(3) 8,500	(3) 41,001	(3) 280,010
(4) 4,001	(4) 30,107	(4) 502,006
(5) 3,207	(5) 53,000	(5) 309,100

Read the largest number in each of these three lines. Read the smallest number in each line.

(*a*)	1,001	110,100	1,100,001
(*b*)	90,006	6,609,060	96,000
(*c*)	5,010	5,100,500	15,011

Write in figures these numbers:

(1) One thousand nine hundred two.
(2) Two thousand six.
(3) Ten thousand sixty-one.
(4) Two hundred thousand forty-five.
(5) Thirty thousand one hundred three.
(6) Thirty-five thousand six hundred two.
(7) Three hundred one.
(8) Nine thousand two hundred twenty-one.

Write these numbers in words:

2,001	45,045	410,010
30,006	700,207	39,393
60,000	513,279	623,100
2,900	62,301	53,007

TWO-STEP PROBLEMS

1. John had \$.20. He spent \$.15. Then he earned \$.30. How much money has he now? What is the first step? What is the second step?

2. Mary had 12 dolls. Her sister had 8 dolls. They put them all into the same bed. Six of them fell out. How many dolls were left in the bed?

3. I paid \$.10 for one pencil and \$.04 for another. I sold them both for \$.18. How much did I gain?

4. In one room there are 30 chairs. In another there are 5 fewer chairs. How many chairs are there in the second room? How many are there in both rooms?

5. The daily paper costs \$.02, except on Sunday when it costs \$.08. How much does my paper cost for a week?

6. Three boys bought two balls at \$.12 each. How much must each boy pay as his equal share?

7. Jack saved \$10 a year for 8 years. Then his father gave him enough to make his bank account \$100. How much did his father give him?

8. A farmer put 8 gallons of milk into quart bottles. How many bottles did he use?

9. Robert gathered 24 eggs one day and 12 eggs the next day. He put them into boxes holding one dozen each. How many boxes did he use?

10. James and Paul each had \$8. James lost \$2 and Paul earned \$6. How much more had Paul than James?

11. After spending \$5, I had 3 times that amount in my purse. How much had I at first?

12. Mother had one and one half dozen eggs this morning. She cooked 9 of them for breakfast. How many had she left?

13. Mother had 2 dozen oranges. She used one third of them for breakfast. How many had she left?

14. Mother made 3 birthday cakes and put 9 candles on each cake. Four of the candles on each cake were white and the others were pink. How many candles were pink?

15. A long table seats 9 at each side, and 3 at each end. How many persons can sit at this table?

16. On a stormy day, 9 children were present. That was only one fourth of our class. How many children belong in the class? How many children were absent? What part of the class was absent?

17. Peter's hens lay 5 eggs every day. How many eggs will he get in two weeks?

18. Mother buys 2 quarts of milk each day. Milk costs $.15 a quart. How much is her bill for Monday and Tuesday?

19. It takes two yards of ribbon for a girl's hair. If ribbon is 40 cents a yard, how much will it cost to buy enough ribbon for Ruth and her sister?

20. Father brought home half a dozen pink roses and a dozen and a half white roses. How much did they cost at $2 a dozen?

21. Mr. Webster had 12 pounds of peppermints and 8 pounds of wintergreen candy. He put them into 2-pound boxes. How many boxes did he need?

22. At the corner fruit stand, bananas are 2 for 5 cents. What is the cost of one dozen bananas?

23. Louise went to the store. She bought half a pound of 38-cent coffee and 2 ten-cent loaves of bread. How much did she spend?

24. My watch loses one minute each hour. How much has it lost in 2 days?

25. Take 20 from one half of 90.

26. I had 32 tulip bulbs. I threw away 8 poor ones and then bought a dozen more. How many had I then?

27. Four 15-cent books cost how much less than 80 cents?

28. If 45 boys are needed for a piece of work and 12 boys come from one class and 15 from another, how many boys are still needed?

29. Find the cost of 2 pineapples at \$.15 each, and 3 oranges at \$.07 each.

30. A man owes the doctor \$72. If he pays \$8 a week, how many weeks will he take to pay it all? When he has made 4 payments, how much does he still owe?

31. A grocer buys butter at \$.45 a pound, and sells it for \$.52 a pound. How much does he gain on 9 pounds?

32. Mother spent \$21 for 7 Christmas presents. How much did each present cost, if they were all alike? How much money had she left out of 2 ten-dollar bills and 1 five-dollar bill?

33. Father's watch cost \$58, and his chain cost \$40 less. How much did the chain cost? How much did both cost?

ROMAN NUMERALS

In writing numbers we generally use these numerals, called Arabic or Hindu: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9.

You have had the Roman numerals from I to XII.

The Romans used three letters, I and V and X, in writing numbers from one to thirty-nine.

Read the numbers made from these three letters.

V	IV	XIX	XXXVIII
VIII	XX	XXV	XXXIX
X	XV	XXIV	XIV
XII	XXXV	VII	XVII
III	XXIV	IX	XXXIV

In writing large numbers the Romans used L and C.

L = 50 C = 100

Read these Roman numerals.

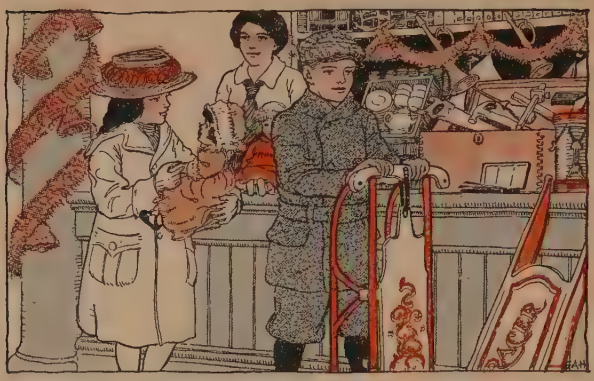
Write the corresponding Arabic numerals.

XLI	XLIX	XLV	LXIX
XLVI	LII	LXXX	LXIV
XXXIV	LVIII	LXXXII	XLIV
CCC	CXIV	CLXV	CXLV
CCX	CXIX	CCXL	CLII
CIV	CXL	CIX	CXXI

1. James had a new book. He read to Chapter XIX the first day. How many chapters did he read?

2. Mary read from Chapter IX to Chapter XXIX. How many chapters did she read?

3. Louise's Sunday-School lesson is Psalm XIII. Write the number of the Psalm in another way.



Buying Christmas Presents

Price List

Large doll	$3.69	Doll's bed	$1.40
Small doll	.49	Doll's table	.75
Boat	.39	Doll's chair	.40
Drum	1.50	Dishes	.98
Gun	.65	Paints	.45
Ice skates	2.60	Book	.38
Roller skates	1.98	Ball	.25
Tool box	5.40	Sled	2.25
Horn	.35	Suit case	.59

1. For Christmas, Jane received a large doll, a suit case, dishes, a bed, table, and two chairs. Find the cost of all her presents.

2. Marvin received ice skates, a tool box, and a gun. Did his presents cost more or less than Jane's?

3. Walter saved $4.40 and spent more than half of it for a present for his sister. What do you think he bought?

4. Mrs. Moore bought a set of dishes for each of a dozen little girls. Find how much she spent for them.

5. Mr. Moore bought roller skates for the same number of little boys. How much did the skates cost?

6. Robert bought a horn. His brother said, "I bought something which cost just \$.30 more than your horn did." What did the brother buy?

7. How much money would it take to buy one each of every present which costs less than \$1?

8. How much would a man spend who bought one each of every present which costs more than \$1.50?

9. If you had \$5 to spend, what would you buy?

10. Ellen said, "I came to the store with \$2, bought one present and have \$.60 left. Tell what I bought."

11. Which would cost less, five books or three guns? How much less?

12. After Sam bought a sled for his little brother, he had \$3.98 left. How much money had he at first?

13. Father said, "Nat, I'll give you half of the price of a tool box if you will earn the rest of the money." How much must Nat earn?

14. Ben wants to buy roller skates for his sister, but he has only \$.85. How much money must he save before he can pay for the skates?

15. A boy and his sister each spent the same amount of money. He bought a drum and a horn. She bought a doll's bed and something else. What else did she buy?

16. Using these prices, write three problems telling about things you would like to buy for Christmas presents. Bring them in for your next lesson.

THREE-FIGURE MULTIPLIER

2,067 325 10335 4134 6201 671,775	Remember what you have learned about using a two-figure multiplier, and see if you can understand how to multiply by a three-figure multiplier.

In the example above, read the *multiplier;* the *multiplicand.*
How many figures are in the multiplier?
How many partial products are in this example?
Where is the first figure of each partial product placed?
Read the product.

PROBLEMS

1. In a school building, 219 tons of coal were used. Find the cost of it at $11.75 per ton.

2. At a sale, in a large store, 118 sweaters were sold at $3.98 each. How much was received for them?

3. Washington School needs 245 new geographies. Find the cost of them at $1.09 each.

Multiply. Carefully go over your work to check it.

1.	**2.**	**3.**	**4.**
249	843	827	7,850
326	457	496	389

Multiply

1. 285 by 392	**3.** 206 by 896	**5.** 9,004 by 679
2. 732 by 745	**4.** 438 by 724	**6.** $4.98 by 356

Find the product of

1. 385 and 976	**2.** 4,273 and 584	**3.** 327 and 469

Multiplier Containing a Zero

A.		*B.*	
	5,279		$12.79
	608		280
	42232		102320
	31674		2558
	3,209,632		$3,581.20

Read the multiplier in each example.

How many figures are in each multiplier?

When a 0 appears in a 3-figure multiplier, how many partial products do we write?

Where must the first figure of each partial product be written?

Read each product. Read each multiplicand.

PROBLEMS

1. The children in a large school collected enough money to furnish 109 Christmas baskets. The cost of each basket was $4.95. How much money did they collect?

2. In September, 308 new desks were put into a school building. At $4.98 each, did they cost more or less than $1,000?

Multiply.

1. 672 by 903	3. 6,275 by 802	5. $16.85 by 350
2. 548 by 709	4. $10.75 by 140	6. $20.98 by 470

Find the product of

1. 907 and 605	3. 7,982 and 460	5. 602 and 9,438
2. 3,296 and 508	4. 2,049 and 703	6. $13.25 and 200

DIVISION

Dividing by 10, 100, etc.

$10\overline{)200}$	$20\overline{)400}$	$30\overline{)3,000}$	$40\overline{)1,200}$	$30\overline{)600}$
$110\overline{)220}$	$30\overline{)90}$	$70\overline{)140}$	$60\overline{)300}$	$40\overline{)8,000}$
$50\overline{)100}$	$40\overline{)400}$	$100\overline{)400}$	$600\overline{)4,200}$	$500\overline{)1,500}$

PROBLEMS WITHOUT NUMBERS

1. James had some chickens. His mother gave him some more. Then he sold some of them. How can you find how many chickens James had left?

2. If you know how many days Father works and how much he earns each day, how can you tell how much money he earns? If he spends some, how can you find how much he has left?

3. John had some rabbits but sold some of them. Then he bought some more. How can you find how many he then had?

4. Joseph gave away one third of his marbles. How do you find how many he had left?

5. Father has many eggs in a basket. After he has counted them, how can he tell how many dozen he has?

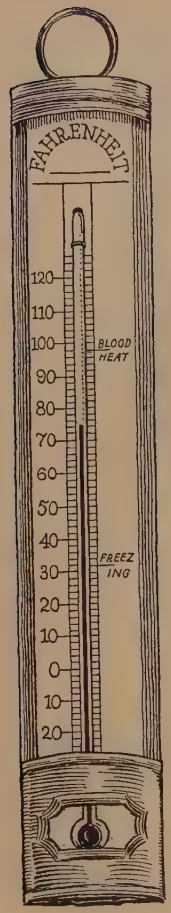
6. I know how many days Lucy visited at her grandmother's. How can I tell how many weeks she was there?

7. Father has a large pail of milk. He knows how many quarts are in the pail. How can he find how many pint bottles he can fill from this pail?

ORAL DRILL

1. Add 6 and 8, subtract 5, add 3.
2. One half of 20, add 9, subtract 4.
3. Double 4, add 9, subtract 1, divide by 4.
4. 3 times 7, add 7, divide by 4, subtract 3.
5. 8 times 4, plus 9, minus 2.
6. From 20 take 8, divide by 6, multiply by 5.
7. 5 nines, plus 5, divide by 5.
8. To 12 add 9, divide by 7, multiply by 8.
9. One third of 9, add 8, multiply by 2.
10. Take 3 dozen, add 4, subtract 20, divide by 5.
11. Take 100, divide by 4, add 10, divide by 5.
12. 9×8, add 8, divide by 10.
13. Double 15, divide by 5, multiply by 6.
14. From 20 take away 4, and tell half of the difference.
15. 3 times 20, add 40, divide by 10, divide by 10.
16. 5 times 0, add 8, multiply by 7.
17. $64 \div 8$, multiply by 4, add 10, divide by 6.
18. $7+8+4$, subtract 3, divide by 2, add 9.
19. Divide 9 by itself, add 13, add 14, divide by 4.
20. Take one fourth of 20, divide by 5, add 17, divide by 6.
21. From 21 take 9, double it, add 3, divide by 3.
22. $16+9+50-3$, divide by 8.
23. Find one third of 18, double it, subtract it from 25.
24. 8 times 7 is how much less than 60?
25. One third of 21, multiply by 9, add 7, divide by 10.

READING THE THERMOMETER



1. Read the thermometer in the picture.

2. Read the thermometer in the room.

3. Which shows the higher temperature?

4. At what point on the thermometer will the mercury be when water freezes?

5. What kind of weather is there when the temperature is 95 degrees?

6. The proper temperature for a schoolroom is 68 degrees. How many degrees too warm is a room when the temperature is 73?

7. At 6 o'clock, the mercury stood at 10 degrees above zero. At midnight it was 10 below zero. How many degrees did it fall?

8. A well child's temperature is about 98 degrees. When Julia was ill her temperature was 104. How much too high was that?

9. How many degrees did the temperature change when the mercury rose from 80 to 97? Was this on a warm or a cold day?

10. At 8 o'clock this morning, our classroom thermometer stood at 50. How far above freezing was that? How far was it below the proper temperature?

11. How many degrees change is there when the mercury falls from 15 above zero to 3 below?

12. Is the mercury likely to be nearer 90 in May or in July?

A Trolley Car Ride

1. Edith and Jack went for a ride. Jack paid the fares, using a quarter. How much change did he receive?

2. Jack and Edith were the only passengers on the car. At each of the first 2 stops, 3 persons got on. How many persons were then on the car?

3. At the next stop as many passengers got on the car as were already on. How many passengers were in the car then?

4. One fourth of these were children. How many children were on the car? How many grown people?

5. One third of the grown people left the car at the next station. How many left the car?

6. How many people were still on the car?

7. One man left the car at the next station and 5 men got on. How many passengers were there then?

8. Write three original problems about a trolley ride you have taken.

PREPARATION FOR LONG DIVISION

Multiplication

(Without Pencil)

1.	20	60	80	90	70	20
	3	5	4	3	5	4
2.	60	20	90	70	50	40
	3	5	6	4	5	9
3.	21	62	31	23	63	71
	4	2	2	3	2	4
4.	92	34	23	64	81	92
	3	2	2	2	7	4
5.	44	21	42	52	43	24
	2	8	3	4	3	2

6. 2 times 43
3 times 21

7. 9 times 41
3 times 33

8. 2 times 24
7 times 31

9.	46	35	27	34	32	46	72
	2	3	2	5	9	3	8
10.	34	26	93	62	85	64	39
	5	3	7	9	5	4	2
11.	49	27	63	92	75	86	92
	3	5	6	8	4	3	8

12.	54	73	65	82	34	75	83
	2	9	4	9	6	2	6
13.	45	86	74	89	62	56	93
	2	3	4	3	7	2	6
14.	36	55	27	69	85	90	72
	2	4	3	7	3	6	4
15.	46	27	86	92	57	92	73
	3	4	2	8	6	2	6

16. 5 times 25 is ——
6 times 36 is ——
5 times 29 is ——

17. 9 times 26 is ——
3 times 42 is ——
6 times 25 is ——

How much money had these children?

18. John had 9 dimes. He had —— cents.

19. Louise had 6 dimes and a nickel. She had —— cents.

20. Mary had 3 quarters. She had —— cents.

21. Jack had 2 half dollars and 5 dimes. He had ——.

22. Fred had 3 quarters, 2 dimes, and a nickel. He had ——.

23. Marion had a quarter, 3 dimes, and 4 cents. She had ——.

24. Ruth had three purses each containing 49 cents. She had ——.

25. Richard had 4 banks each containing 58 cents. He had ——.

LONG DIVISION

This is the way to divide, using *long division.*

A. $21\overline{)903}$ (43; 84; 63; 63)

Think:

First, "How many 21's in 90? About as many as there are 2's in 9, which is 4."

Second, "4 times 21 is 84."

Third, "84 is less than 90," so write 4 over 0 and write 84 under 90. Write the 4, then the 8.

Fourth, "Subtract 84 from 90. 6 is the remainder."

Fifth, "6 is less than the divisor 21," so,

Sixth, "bring down 3, making 63 for the next *partial dividend.*"

Then think:

"How many 21's in 63? 3. 3 times 21 is 63." Write 3 in the quotient and write 63 under 63. Write the 3, then the 6.

The six different steps in long division are:

1. Divide.
2. Multiply.
3. Compare product and partial dividend.
4. Subtract.
5. Compare remainder and divisor.
6. Bring down.

To prove your work in long division, multiply the quotient by the divisor and add the last remainder if there be one. The answer should be the same as the dividend.

Divide, using over and over the six steps shown above.

1. $21\overline{)672}$	**4.** $31\overline{)697}$	**7.** $12\overline{)492}$	**10.** $21\overline{)504}$
2. $11\overline{)693}$	**5.** $22\overline{)902}$	**8.** $13\overline{)299}$	**11.** $31\overline{)682}$
3. $51\overline{)561}$	**6.** $33\overline{)699}$	**9.** $21\overline{)659}$	**12.** $41\overline{)875}$

Now work the examples under (*a*) on pages 189, 190.

B.
$$\begin{array}{r} 54\frac{10}{} \\ 22\overline{)1198} \\ 110 \\ \hline 98 \\ 88 \\ \hline 10 \end{array}$$

Use 119 for the first *partial dividend* and think:

First, "How many 22's in 119? About as many as there are 2's in 11, which is 5."

Second, "5 times 22 is 110."

Third, "110 is less than 119," so write 5 over 9 and write 110 under 119.

Fourth, "Subtract 110 from 119. 9 is the remainder."

See if you can understand how to work the rest of this example.

Divide and prove your work.

1. $51\overline{)2{,}091}$
2. $22\overline{)1{,}782}$
3. $21\overline{)1{,}911}$
4. $43\overline{)1{,}075}$
5. $33\overline{)1{,}763}$
6. $44\overline{)3{,}599}$
7. $81\overline{)3{,}402}$
8. $81\overline{)1{,}508}$

Now work the examples under (*b*) on pages 189, 190.

PROBLEMS

1. Twenty-one girls had a candy sale and earned $17.01.

$$\begin{array}{r} \$.81 \\ 21\overline{)\$17.01} \\ 168 \\ \hline 21 \\ 21 \end{array}$$

This is the way they found each one's equal share of the money.

Notice that the decimal point and $ in the quotient are placed exactly as in short division examples.

2. The cost of a camping trip for 22 boys was $77.88. How much should each one pay?

3. Thirty-two girls went camping for $69.76. Find each girl's share of the expense.

4. The bill for 42 new geographies for our class was $48.30. Find the price of each book.

C1.

$$\begin{array}{r} 160 \\ 32\overline{)5,120} \\ 32 \\ \hline 192 \\ 192 \\ \hline 0 \end{array}$$

C2.

$$\begin{array}{r} 504 \\ 32\overline{)16,128} \\ 160 \\ \hline 128 \\ 128 \\ \hline \end{array}$$

Remember to put 0 in the quotient, when the *partial dividend* is smaller than the divisor. Study these two examples to help you work the following ones.

Find the quotients. Prove your answers.

1. $42\overline{)8,654}$
2. $31\overline{)9,610}$
3. $12\overline{)3,648}$
4. $22\overline{)15,579}$
5. $12\overline{)\$24.48}$
6. $56\overline{)\$84.00}$
7. $33\overline{)\$178.30}$
8. $21\overline{)\$127.05}$

Now work the examples under (*c*) on pages 189, 190.

D.

$$\begin{array}{r} 32\frac{5}{25} \\ 25\overline{)805} \\ 75 \\ \hline 55 \\ 50 \\ \hline 5 \end{array}$$

Think, "How many 25's in 80. About 4. 4 times 25 is 100, which is *more* than 80, so try 3. 3 times 25 is 75, which is not more than 80," so write 3 in the quotient. You can easily understand the rest of this example. Always try the quotient figure and be sure it is the correct one before writing it in the quotient. Then you will not need to erase your work.

Find the quotients. Prove your answers.

1. $12\overline{)6,564}$
2. $25\overline{)1,050}$
3. $15\overline{)3,970}$
4. $45\overline{)1,620}$
5. $64\overline{)3,648}$
6. $27\overline{)1,680}$
7. $35\overline{)1,365}$
8. $25\overline{)8,050}$
9. $16\overline{)\$50.88}$
10. $49\overline{)\$12.74}$
11. $26\overline{)\$108.08}$
12. $29\overline{)\$219.24}$

Now work the examples under (*d*) on pages 189, 190.

PROBLEMS

1. Our 15-lb. turkey for Thanksgiving cost $9.75. Find the cost per pound.

2. The bill for a 17-lb. ham was $6.12. How much was that a pound?

3. At the rate of 75 miles an hour, how long will it take an airplane to travel a distance of 1,425 miles?

4. Fred's stamp-book holds 24 stamps on a page. His sister gave him 384 stamps. How many pages did they fill?

5. John's stamp-book holds only 16 stamps on a page. He received 400 stamps from his uncle and they filled his book. How many pages were in his book?

6. The children in Lincoln School bought a Victrola and records for the assembly hall. The whole cost was $316.10. The 29 classes each paid the same amount. Find how much each class paid.

E.

$$\begin{array}{r} 425 \\ 210\overline{)89{,}250} \\ 840 \\ \hline 525 \\ 420 \\ \hline 1050 \\ 1050 \\ \hline \end{array}$$

See if you can understand from studying this how to use a 3-figure divisor.

Think, "How many 210's in 892? About as many as there are 2's in 8, which is 4. $4\times210=840$ which is less than 892," so write 4 in the quotient over 2 and write 840 under 892 and subtract.

Continue until each figure of the dividend has been used.

Find the quotients and prove your work.

1. $213\overline{)7{,}029}$
2. $310\overline{)15{,}929}$
3. $415\overline{)74{,}790}$
4. $524\overline{)15{,}720}$
5. $365\overline{)30{,}295}$
6. $629\overline{)315{,}758}$

Now work the examples under (*e*) on pages 189, 190.

PROBLEMS

1. The cost of 135 new arithmetics for Washington School was $64.80. Find the cost of each book.

2. John's father took 125 pounds of butter to market and received $67.50 for it. What was the price per pound?

3. The boat fare for 146 children who went to a school picnic was $40.88. How much was that for each?

Finding the Correct Quotient Figure

Find the *first* quotient figure. Multiply mentally to be sure your figure is correct.

1.	44)924	22)705	24)509	21)979	21)862	42)516
2.	35)787	32)725	32)419	34)715	25)796	21)882
3.	43)890	52)69	35)739	42)893	42)939	44)968
4.	22)719	52)796	42)987	61)791	33)990	21)660
5.	31)987	43)892	42)865	34)759	42)117	44)919
6.	53)1,116	53)1,664	52)1,728	73)3,769	62)2,990	
7.	79)4,755	83)7,470	95)8,626	35)1,098	42)3,990	
8.	90)8,712	85)2,898	43)3,199	46)975	76)459	

PROBLEMS FOR ESTIMATING ANSWERS
(Without Pencil)

1. Father bought three new neckties at $1.98 each. About how much did they cost?

2. How many $4.98 dolls can you buy for $40?

3. Your reader cost $.49. About how much will 12 such books cost?

4. Could I pay a $2.99 gas bill and a $6.98 meat bill with $10?

5. A boy earned $50 during his summer vacation. He spent $24.98 for a suit of clothes. About how much did he have left?

6. About how much will a 12-pound turkey cost at $.48 a pound?

7. Jack had 205 marbles in one bag and 98 in another. Did he have more or less than 300 marbles?

8. About how many days are there in 4 months?

9. About how many children are there in a school made up of 398 boys and 298 girls?

10. John's hat cost $1.99. About how much will 6 such hats cost?

11. How many $25 tables can you buy for $105?

12. Robert raised 290 cabbages and sold 89 of them. About how many did he have left?

13. When oranges sell at 8 for $.50, how much do you have to pay for one orange?

14. If candy is worth $.49 a pound, about how much must Mary pay for a pound and a half?

15. I spent \$2.49 for gloves and \$3.98 for a purse. About how much was left from a \$10 bill?

16. When eggs cost \$.48 a dozen, about how many dozen can you buy for \$5?

17. Apples are worth \$.40 a dozen. How many can you get for \$.10?

18. About how much will 9 yards of ribbon cost at \$.19 a yard?

19. A conductor collected 49 five-cent fares. Did he collect more or less than two dollars and a half?

20. About how many quarts of preserves will it take to fill 25 pint jars?

21. By selling a building lot for \$600, I lost \$198. About how much did I pay for it?

22. At \$.98 each how many books can I buy for \$5.00?

23. If the Fresh Air Class in our school uses 29 quarts of milk a day, about how many quarts would it use in a school week?

24. About how many months are there in 100 days?

25. A man left one third of his property, valued at \$9,000, to his wife and the remainder of it to his son. Which received the more?

26. George has 10 postal savings cards filled. How much did they cost him?

27. Mary stayed with her aunt during all of July and August. About how many weeks was she there?

28. Must I give more or less than two dollars to pay for 2 dozen eggs at \$.48 and for meat costing \$1.25?

29. Ruth has $6.00 to spend for Christmas gifts. If she pays $.48 for each one, how many can she buy?

30. Enough 10-cent blank books for a class of 38 children would cost about how many dollars?

31. About how much will I have to pay for half a dozen hats at $4.98 each?

32. About how many feet long is a rope 35 inches long after Dan ties on a piece which measures 10 inches?

33. How much is a 25-pound bag of sugar worth at 8 cents per pound?

34. About how much will 6 pounds of coffee cost at $.48 a pound?

35. A two-pound box of candy costs $1.90. A pound will probably cost how much?

36. Could I buy groceries for $1.25, meat for $2.00, and fruit for $1.50 with a $5 bill?

37. A mile in 20 minutes is the rate at which Father can walk. About how far can he walk in 2 hours?

38. An automobile travels 19 miles an hour. About how long will it take it to go 100 miles?

39. About how much interest will Tom receive on a Liberty Bond in 2 years, if he receives $1.06 twice each year?

40. About how many weeks are there in 50 days?

41. About how many men were there in a parade made up of 680 soldiers and 296 sailors?

42. Max earned $8.50. After he bought 79 postal savings stamps, how much had he left?

43. Our class has 35 geographies which cost $.95 each. About how much did they all cost?

44. Clara's dress cost nearly $10 and the cloth was $1.98 per yard. How many yards do you think her mother bought?

45. About how much change did Henry receive from $10 when he bought a pair of skates for $4.98?

46. Joseph has an allowance of $3 each month. If he saves his money for a year, can he pay for a $35 bicycle?

47. Robert's tool chest cost $4.98, his knife $1.98, his baseball $.95, his glove $1.98. Did his toys cost more or less than $10?

48. Arrange these numbers in the order of their size, beginning with the largest: 632; 429; 9,180; 944; 1,021; 433; 632; 435. The sum of which two will most nearly be equal to the largest?

Buying Playground Supplies

Price List

soccer ball $6.60	playground ball . $.95
volley ball $3.25	basket ball $8.50
volley ball net . . $1.90	bladder . . . . . $.59

In solving the following problems, estimate the answer to each question, using pencil only when necessary.

1. A new school building was supplied with balls for the regular games at cost of 10¢ per pupil. There were 595 pupils in this school. About how much money was spent?

2. If about $\frac{1}{4}$ of this amount was spent for volley balls did they buy 4 or 5 balls?

3. Could a volley ball net be bought with the money that was left from this $\frac{1}{4}$ of the whole amount?

4. If $\frac{1}{4}$ of the money was spent for playground balls, about how many were bought?

5. About how much did one soccer ball and one basket ball cost?

6. About what part of the whole amount was paid for these two balls?

7. About what part of the money was spent for all these supplies?

8. What part of the money was still to be spent? How much money was that?

9. Ten bladders cost about how much?

10. One ball from this list cost about as much money as was left. Which one was it?

11. The children wanted more balls, so they had a paper sale and made $25.49. Using the prices on page 188, make a list of things they could buy with this extra money.

LONG DIVISION DRILL EXAMPLES[1]

Group **1.**

a	*b*	*c*	*d*	*e*
21)672	42)1,176	44)9,196	16)1,520	138)41,676

Group **2.**

a	*b*	*c*	*d*	*e*
21)651	72)6,984	26)5,356	25)8,050	210)89,250

Group **3.**

a	*b*	*c*	*d*	*e*
21)504	52)1,768	83)25,315	32)21,120	541)55,723

[1] *To the teacher:* Similar examples for drill have been placed in the back of the book, pp. 270–272. See *Manual*, p. 229, for suggestions in regard to their use.

Group **4.**

a	*b*	*c*	*d*	*e*
32)416	82)8,036	76)45,980	67)4,958	536)44,488

Group **5.**

a	*b*	*c*	*d*	*e*
44)924	72)4,687	21)94,605	84)49,560	424)88,616

Group **6.**

a	*b*	*c*	*d*	*e*
21)867	62)2,990	53)111,618	64)24,704	809)622,930

Group **7.**

a	*b*	*c*	*d*	*e*
22)704	91)3,003	57)29,013	76)36,936	625)93,750

Group **8.**

a	*b*	*c*	*d*	*e*
71)994	81)3,807	98)59,486	33)9,570	880)29,929

Group **9.**

a	*b*	*c*	*d*	*e*
21)336	92)4,876	95)86,260	34)9,617	352)89,408

Group **10.**

a	*b*	*c*	*d*	*e*
21)864	53)16,642	79)47,558	13)9,750	398)47,362

Group **11.**

a	*b*	*c*	*d*	*e*
42)516	43)11,352	83)7,470	18)9,540	214)73,830

FRACTIONS

Reading and Writing Fractions

Any whole thing, such as an apple or a book or a group of children, is called a *unit.*

Any part of a unit, as $\frac{1}{2}$ or $\frac{2}{3}$, is a *fraction.*

The number below the line is the *denominator,* or namer of the fraction. The denominator of the fraction $\frac{2}{3}$ is 3. It gives the name thirds to the fraction. It also tells into how many equal parts the unit is divided.

The number above the line is the *numerator,* or numberer of the fraction. The numerator of the fraction $\frac{2}{3}$ is 2. It tells how many of the equal parts (thirds) are taken.

$\frac{3}{4}$ This fraction is read *three fourths.* The numerator is 3 and the denominator is 4. It means that some unit is divided into 4 equal parts and 3 of these parts are taken.

Read these fractions. Give the numerator and the denominator and tell what each fraction means.

1. $\frac{1}{5}$	**3.** $\frac{2}{3}$	**5.** $\frac{2}{5}$	**7.** $\frac{1}{4}$	**9.** $\frac{4}{5}$
2. $\frac{1}{2}$	**4.** $\frac{1}{3}$	**6.** $\frac{3}{5}$	**8.** $\frac{3}{8}$	**10.** $\frac{7}{10}$

Write the following in fraction form.

11. One fifth	**14.** Nine tenths	**17.** Three fourths
12. One eighth	**15.** Two thirds	**18.** Five eighths
13. Four fifths	**16.** Five sixths	**19.** Seven eighths

Adding Halves

If I add one half a pound of sugar to two pounds of sugar, how much sugar shall I have?

This addition may be written $2 + \frac{1}{2} = 2\frac{1}{2}$, or

$$\begin{array}{r} 2 \\ \frac{1}{2} \\ \hline 2\frac{1}{2} \end{array}$$

Add the following.

1. $1 + \frac{1}{2}$ **2.** $4 + \frac{1}{2}$ **3.** $3 + \frac{1}{2}$ **4.** $\frac{1}{2} + 2$ **5.** $\frac{1}{2} + 6$

6. $\begin{array}{r} 7 \\ \frac{1}{2} \\ \hline \end{array}$ **7.** $\begin{array}{r} 9 \\ \frac{1}{2} \\ \hline \end{array}$ **8.** $\begin{array}{r} 1\frac{1}{2} \\ 10 \\ \hline \end{array}$ **9.** $\begin{array}{r} 2\frac{1}{2} \\ 8 \\ \hline \end{array}$ **10.** $\begin{array}{r} 12 \\ 1\frac{1}{2} \\ \hline \end{array}$

If I add one half a yard of ribbon to one half a yard of ribbon, how much ribbon shall I have?

This addition may be written $\frac{1}{2} + \frac{1}{2} = 1$, or

$$\begin{array}{r} \frac{1}{2} \\ \frac{1}{2} \\ \hline 1 \end{array}$$

Add the following.

1. $\frac{1}{2}$ inch + $\frac{1}{2}$ inch

2. $\frac{1}{2}$ hour + $\frac{1}{2}$ hour

3. $\begin{array}{r} 2\frac{1}{2} \\ 3\frac{1}{2} \\ \hline 6 \end{array}$ Here, $\frac{1}{2} + \frac{1}{2} = 1$. Adding this 1 to the other numbers, we get, $1 + 3 + 2 = 6$.

4. $\begin{array}{r} 1\frac{1}{2} \\ 2\frac{1}{2} \\ \hline \end{array}$ **6.** $\begin{array}{r} 3\frac{1}{2} \\ 1\frac{1}{2} \\ \hline \end{array}$ **8.** $\begin{array}{r} 2\frac{1}{2} \\ 2\frac{1}{2} \\ \hline \end{array}$ **10.** $\begin{array}{r} 4\frac{1}{2} \\ 3\frac{1}{2} \\ \hline \end{array}$ **12.** $\begin{array}{r} 2\frac{1}{2} \\ 6\frac{1}{2} \\ \hline \end{array}$

5. $\begin{array}{r} 4\frac{1}{2} \\ 5\frac{1}{2} \\ \hline \end{array}$ **7.** $\begin{array}{r} 7\frac{1}{2} \\ 3\frac{1}{2} \\ \hline \end{array}$ **9.** $\begin{array}{r} 5\frac{1}{2} \\ 2\frac{1}{2} \\ \hline \end{array}$ **11.** $\begin{array}{r} 6\frac{1}{2} \\ 1\frac{1}{2} \\ \hline \end{array}$ **13.** $\begin{array}{r} 9\frac{1}{2} \\ 3\frac{1}{2} \\ \hline \end{array}$

PROBLEMS

14. How much is 4 inches and $\frac{1}{2}$ inch? $2\frac{1}{2}$ inches and 3 inches?

15. Jennie has one piece of blue ribbon $1\frac{1}{2}$ yards long and another piece $3\frac{1}{2}$ yards long. How much blue ribbon has she in all?

16. It took Robert $1\frac{1}{2}$ hours to ride to his cousin's house and $2\frac{1}{2}$ hours to return over a longer road. How many hours did it take for the whole trip?

17. Bob and Dick went on a hike. They walked $4\frac{1}{2}$ miles in the morning and $3\frac{1}{2}$ miles in the afternoon. How long was their hike?

18. Ruth's doll is $10\frac{1}{2}$ inches tall. Her sister's new one is $3\frac{1}{2}$ inches taller than Ruth's. How tall is the new doll?

Mr. Jones hired six boys to work in his garden during the summer vacation. He kept a record of the number of hours each one worked. Tell how many hours each worked the first week.

	Sam	*Tony*	*Ned*	*John*	*Nick*	*Nat*
Monday	$2\frac{1}{2}$	$1\frac{1}{2}$	$3\frac{1}{2}$	3	$\frac{1}{2}$	$5\frac{1}{2}$
Tuesday	3	2	$2\frac{1}{2}$	$\frac{1}{2}$	$4\frac{1}{2}$	$4\frac{1}{2}$
Friday	$4\frac{1}{2}$	5	5	6	3	6

Without using paper, find how many hours' help Mr. Jones had that week.

At 25¢ an hour, find how much this help cost Mr. Jones.

Subtracting Halves

If I have three and one half loaves of bread and take away one loaf, how much bread will be left?

This may be written $3\frac{1}{2} - 1 = 2\frac{1}{2}$, or

$$\begin{array}{r} 3\frac{1}{2} \\ 1 \\ \hline 2\frac{1}{2} \end{array}$$

If I have $2\frac{1}{2}$ quarts of milk and use $1\frac{1}{2}$ quarts, how much milk will be left?

This subtraction may be written $2\frac{1}{2} - 1\frac{1}{2} = 1$, or

$$\begin{array}{r} 2\frac{1}{2} \\ 1\frac{1}{2} \\ \hline 1 \end{array}$$

Subtract.

1. $2\frac{1}{2}$	**2.** $4\frac{1}{2}$	**3.** $1\frac{1}{2}$	**4.** $5\frac{1}{2}$	**5.** $7\frac{1}{2}$
1	1	1	3	4
6. $3\frac{1}{2}$	**7.** $5\frac{1}{2}$	**8.** $6\frac{1}{2}$	**9.** $8\frac{1}{2}$	**10.** $10\frac{1}{2}$
$1\frac{1}{2}$	$1\frac{1}{2}$	$3\frac{1}{2}$	$2\frac{1}{2}$	$3\frac{1}{2}$

PROBLEMS

1. Mary was making flowers from a piece of ribbon $9\frac{1}{2}$ inches long. She cut off 1 inch. How much was left?

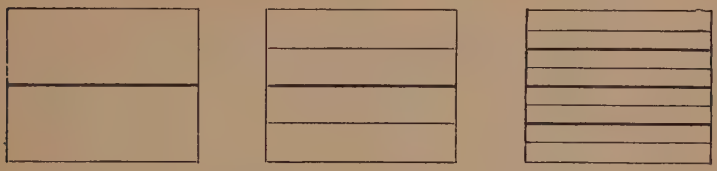
2. Alice is $8\frac{1}{2}$ years old and her little brother is $5\frac{1}{2}$ years old. How much older is Alice than her brother?

3. Richard rode to a camp $6\frac{1}{2}$ miles away. He stopped to rest after he had ridden 4 miles. How far had he still to go?

4. Lucy starts with her father on a $5\frac{1}{2}$-hour automobile ride to Grandma's house. After they have ridden $3\frac{1}{2}$ hours, how long have they still to ride?

Comparing Halves, Fourths, Eighths

I II III



1. Into how many equal parts is oblong I divided? What is each part called?

2. Into how many equal parts is oblong II divided? What is each part called? What do you call three of the parts?

3. Into how many equal parts is oblong III divided? What is each part called? What do you call three of the parts? four of the parts?

4. One half equals how many fourths? or $\frac{1}{2} = \frac{?}{4}$

5. One half equals how many eighths? or $\frac{1}{2} = \frac{?}{8}$

6. Three fourths equals how many eighths? or $\frac{3}{4} = \frac{?}{8}$

7. Which is greater, one half or three fourths?

8. Compare four eighths with one half.

9. $\frac{1}{2} = \frac{?}{4} = \frac{?}{8}$

10. $\frac{2}{4} = \frac{?}{2}$

11. $\frac{6}{8} = \frac{?}{4}$

12. How much must be added to $\frac{1}{4}$ to make $\frac{1}{2}$?

13. How many eighths must be added to $\frac{1}{8}$ to make $\frac{1}{2}$?

14. One is the same as how many halves? How many fourths? How many eighths?

15. What must be added to $\frac{3}{4}$ to make 1?

16. What must be added to $\frac{5}{8}$ to make 1?

Adding and Subtracting Halves and Fourths

To add or subtract halves and fourths, we must first change the halves to fourths.

From the oblong we learn:

$\frac{1}{4} + \frac{3}{4} = \frac{4}{4} = 1$

$\frac{1}{4} + \frac{1}{4} = \frac{2}{4} = \frac{1}{2}$

$\frac{1}{2} + \frac{1}{4} = \frac{2}{4} + \frac{1}{4} = \frac{3}{4}$

Add.

1. $\frac{1}{4}$	**2.** $\frac{1}{4}$	**3.** $\frac{1}{4}$	**4.** 5	**5.** $1\frac{1}{4}$
$\frac{3}{4}$	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{1}{4}$	6
6. 2	**7.** $2\frac{1}{4}$	**8.** $1\frac{3}{4}$	**9.** $1\frac{1}{2}$	**10.** $3\frac{1}{4}$
$\frac{3}{4}$	$2\frac{3}{4}$	$4\frac{1}{4}$	$1\frac{1}{4}$	$2\frac{1}{2}$

From the oblong we learn:

$\frac{3}{4} - \frac{1}{4} = \frac{2}{4} = \frac{1}{2}$

$\frac{1}{2} - \frac{1}{4} = \frac{2}{4} - \frac{1}{4} = \frac{1}{4}$

$\frac{3}{4} - \frac{1}{2} = \frac{3}{4} - \frac{2}{4} = \frac{1}{4}$

Subtract.

1. $\frac{3}{4}$	**2.** $\frac{1}{2}$	**3.** $\frac{3}{4}$	**4.** $3\frac{1}{4}$	**5.** $4\frac{3}{4}$
$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{2}$	1	1
6. $9\frac{1}{4}$	**7.** $7\frac{3}{4}$	**8.** $6\frac{3}{4}$	**9.** $4\frac{1}{2}$	**10.** $9\frac{3}{4}$
$5\frac{1}{4}$	$2\frac{1}{4}$	$1\frac{1}{2}$	$3\frac{1}{4}$	$6\frac{1}{2}$

PROBLEMS

1. Helen bought two pieces of cloth, one $3\frac{1}{4}$ yards long and the other $1\frac{3}{4}$ yards long. How much cloth did she buy?

2. Arnold helped his mother $2\frac{1}{2}$ hours Saturday morning and $1\frac{1}{4}$ hours Saturday afternoon. How long did he help his mother that day?

3. If you take $1\frac{1}{4}$ inches from $2\frac{3}{4}$ inches, how many inches will be left? Try this on your ruler.

4. From a roll of cloth $3\frac{3}{4}$ yards long, a clerk sold $2\frac{1}{2}$ yards. How much cloth was left on the roll?

Adding Halves, Fourths, Eighths

To add halves or fourths and eighths, we must first change the halves or fourths to eighths.

From the oblong we learn:

$1 = \frac{8}{8}$ $\frac{1}{4} = \frac{2}{8}$ $\frac{1}{2} = \frac{4}{8}$ $\frac{3}{4} = \frac{6}{8}$

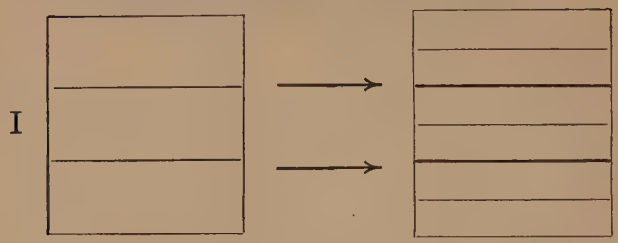
$\frac{1}{4} + \frac{1}{8} = \frac{2}{8} + \frac{1}{8} = \frac{3}{8}$

$\frac{1}{2} + \frac{1}{8} = \frac{4}{8} + \frac{1}{8} = \frac{5}{8}$

Add.

1. $\frac{1}{8}$	2. $\frac{1}{8}$	3. $\frac{3}{8}$	4. $\frac{5}{8}$	5. $\frac{1}{8}$
$\frac{1}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{5}{8}$
6. $\frac{1}{4}$	7. $\frac{1}{4}$	8. $\frac{5}{8}$	9. $\frac{1}{2}$	10. $\frac{1}{8}$
$\frac{1}{8}$	$\frac{3}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{3}{4}$
11. $3\frac{3}{8}$	12. $5\frac{1}{4}$	13. $4\frac{1}{8}$	14. $8\frac{1}{8}$	15. $2\frac{3}{8}$
$2\frac{1}{8}$	$3\frac{1}{8}$	$2\frac{1}{2}$	$5\frac{3}{4}$	$3\frac{5}{8}$

Comparing Thirds and Sixths



1. What is each part of oblong I called? What are two of the parts called?
2. One whole equals how many thirds?
3. What is each part of oblong II called? What are four of the parts called?
4. One whole is equal to how many sixths?
5. $\frac{1}{3} = \frac{?}{6}$ $\frac{2}{3} = \frac{?}{6}$ $\frac{1}{2} = \frac{?}{6}$ $1 = \frac{?}{3} = \frac{?}{6}$
6. Which is greater, $\frac{1}{3}$ or $\frac{1}{2}$?
7. What must be added to $\frac{1}{3}$ to make 1?
8. What must be added to $\frac{5}{6}$ to make 1?
9. Name these fractions in the order of size, beginning with the smallest: $\frac{1}{2}$, $\frac{1}{6}$, $\frac{1}{3}$, $\frac{1}{5}$, $\frac{1}{8}$, $\frac{1}{10}$

Adding and Subtracting Halves, Thirds, Sixths

To add or subtract halves or thirds and sixths, we must first change the halves or thirds to sixths.

From the oblong we learn:

$\frac{1}{2} + \frac{1}{6} = \frac{3}{6} + \frac{1}{6} = \frac{4}{6} = \frac{2}{3}$

$\frac{1}{3} + \frac{1}{6} = \frac{2}{6} + \frac{1}{6} = \frac{3}{6} = \frac{1}{2}$

$\frac{1}{2} - \frac{1}{6} = \frac{3}{6} - \frac{1}{6} = \frac{2}{6} = \frac{1}{3}$

$\frac{1}{3} - \frac{1}{6} = \frac{2}{6} - \frac{1}{6} = \frac{1}{6}$

Add.

1. 4 $\frac{1}{3}$	2. $\frac{1}{3}$ 2	3. $2\frac{1}{3}$ $\frac{1}{3}$	4. $3\frac{1}{3}$ $2\frac{1}{3}$	5. $4\frac{1}{3}$ $5\frac{1}{3}$
6. $2\frac{1}{6}$ 3	7. $1\frac{1}{6}$ 5	8. $4\frac{1}{6}$ $3\frac{1}{6}$	9. $3\frac{2}{6}$ $5\frac{1}{6}$	10. $2\frac{1}{3}$ $2\frac{1}{6}$
11. $1\frac{3}{6}$ $2\frac{1}{6}$	12. $3\frac{1}{2}$ $1\frac{1}{6}$	13. $2\frac{5}{6}$ $4\frac{1}{6}$	14. $5\frac{2}{3}$ $3\frac{1}{3}$	15. $6\frac{2}{3}$ $4\frac{1}{6}$

Subtract.

16. $5\frac{2}{3}$ 1	17. $6\frac{1}{3}$ 3	18. $8\frac{5}{6}$ 2	19. $7\frac{1}{3}$ $3\frac{1}{3}$	20. $9\frac{2}{3}$ $7\frac{2}{3}$
21. $10\frac{2}{3}$ $3\frac{1}{3}$	22. $8\frac{5}{6}$ $3\frac{1}{6}$	23. $12\frac{2}{6}$ $5\frac{1}{6}$	24. $9\frac{1}{3}$ $4\frac{1}{6}$	25. $11\frac{1}{2}$ $9\frac{1}{6}$

PROBLEMS

1. How much is one and one third hours added to two and one third hours?

2. A clerk sold one and one sixth yards of silk to one customer and two and five sixths yards to another. How much silk did he sell to both customers?

3. One Saturday, Donald worked two and one third hours helping his brother clean the cellar and one and one sixth hours helping his mother. How many hours did he help?

4. How much is $7\frac{2}{3}$ miles less $3\frac{1}{3}$ miles?

5. Helen is $10\frac{1}{2}$ years old and Elizabeth is $5\frac{1}{6}$ years old. How much older is Helen than Elizabeth?

ADDITION AND SUBTRACTION PRACTICE

Add.

1. 6 $7\frac{1}{2}$ 3	2. $4\frac{1}{2}$ 5 $6\frac{1}{2}$	3. $8\frac{1}{3}$ $4\frac{1}{3}$ 2	4. $5\frac{1}{3}$ $3\frac{1}{3}$ $2\frac{1}{3}$	5. $3\frac{1}{4}$ $7\frac{1}{4}$ $8\frac{1}{4}$
6. 7 $5\frac{3}{4}$ $5\frac{1}{4}$	7. $9\frac{1}{2}$ 8 $6\frac{1}{4}$	8. $3\frac{1}{2}$ $2\frac{1}{4}$ $6\frac{1}{4}$	9. $8\frac{1}{8}$ $5\frac{1}{8}$ $9\frac{1}{8}$	10. $4\frac{3}{4}$ 7 $5\frac{1}{8}$
11. $16\frac{1}{4}$ $3\frac{1}{4}$ $45\frac{3}{4}$ $2\frac{3}{4}$	12. $9\frac{1}{2}$ $14\frac{1}{2}$ $22\frac{3}{4}$ $5\frac{1}{4}$	13. $3\frac{1}{3}$ $49\frac{2}{3}$ $15\frac{1}{3}$ $6\frac{2}{3}$	14. $4\frac{1}{8}$ $17\frac{7}{8}$ $3\frac{3}{8}$ $25\frac{5}{8}$	15. $2\frac{1}{6}$ $18\frac{5}{6}$ $28\frac{2}{3}$ $14\frac{1}{3}$

Subtract.

1. $9\frac{1}{2}$ 6	2. $8\frac{1}{4}$ $2\frac{1}{4}$	3. $5\frac{3}{4}$ $1\frac{1}{4}$	4. $10\frac{5}{6}$ $4\frac{1}{6}$	5. $12\frac{1}{3}$ $2\frac{1}{6}$
6. $15\frac{5}{8}$ $7\frac{1}{8}$	7. $9\frac{1}{2}$ $3\frac{1}{4}$	8. $16\frac{3}{4}$ $10\frac{1}{2}$	9. $21\frac{7}{8}$ $14\frac{5}{8}$	10. $24\frac{5}{6}$ $15\frac{1}{2}$
11. $15\frac{3}{4}$ $2\frac{1}{2}$	12. $46\frac{5}{8}$ $19\frac{1}{4}$	13. $37\frac{5}{6}$ $20\frac{1}{3}$	14. $16\frac{7}{8}$ $7\frac{3}{4}$	15. $20\frac{1}{2}$ $13\frac{1}{6}$
16. $13\frac{1}{2}$ 9	17. $52\frac{3}{6}$ $28\frac{1}{2}$	18. $49\frac{7}{8}$ $38\frac{1}{4}$	19. $62\frac{1}{3}$ $19\frac{1}{6}$	20. $15\frac{2}{3}$ 9

PROBLEMS IN SIMPLE FRACTIONS

1. Ruth practiced her music $\frac{1}{2}$ hour in the morning and $\frac{1}{4}$ hour in the afternoon. How long did she practice?

2. Mother brought in $\frac{1}{2}$ of a chocolate cake for supper and later she brought in $\frac{1}{6}$ of the cake. How many sixths of the cake did she bring in? How many thirds?

3. Alice had $\frac{3}{4}$ of a yard of ribbon and cut off $\frac{1}{8}$ of a yard. How many 8ths of ribbon were left?

4. Marion's sash was $3\frac{1}{2}$ yards long. That was $\frac{1}{8}$ of a yard too long. How long was it after Mother cut off $\frac{1}{8}$ of a yard?

5. Mother bought $\frac{1}{8}$ of a pound of green tea and $\frac{3}{4}$ of a pound of black tea. She mixed them. What part of a pound of tea had she?

6. There are $\frac{1}{2}$ dozen buttons on Jack's waist and $\frac{1}{3}$ dozen on his coat. What part of a dozen are on his coat and waist?

7. It is $2\frac{1}{2}$ miles to Cousin Robert's house and $5\frac{1}{2}$ miles from Robert's on to Uncle Will's. How far is it to Uncle Will's house?

8. The tail of Jim's kite was $9\frac{3}{4}$ feet long but he had to cut off $2\frac{1}{2}$ feet. How long was the tail then?

FINDING PARTS OF NUMBERS

1. Use a tape measure or a yardstick to help you answer these questions.

How many inches = 1 yd.? $\frac{1}{2}$ yd.? $\frac{1}{4}$ yd.? $\frac{3}{4}$ yd.? $\frac{1}{3}$ yd.? $\frac{2}{3}$ yd.?

2. Make a picture of a dozen oranges to help you in answering these questions.

How many oranges = $\frac{1}{4}$ doz.? $\frac{3}{4}$ doz.? $\frac{1}{3}$ doz.? $\frac{2}{3}$ doz.? $\frac{1}{6}$ doz.? $\frac{5}{6}$ doz.?

3. Remember that there are 16 ounces in a pound and answer these questions.

How many ounces = $\frac{1}{4}$ lb.? $\frac{1}{2}$ lb.? $\frac{3}{4}$ lb.?

How many ounces = $\frac{1}{8}$ lb.? $\frac{3}{8}$ lb.? $\frac{5}{8}$ lb.? $\frac{7}{8}$ lb.?

4. Remember that 10 dimes = one dollar and answer these questions.

How much is $\frac{1}{10}$ of a dollar? $\frac{3}{10}$? $\frac{5}{10}$? $\frac{7}{10}$? $\frac{9}{10}$?

How much is $\frac{2}{10}$ or $\frac{1}{5}$ of a dollar? $\frac{2}{5}$? $\frac{3}{5}$? $\frac{4}{5}$?

5. To find $\frac{3}{4}$ of 8, think: "$\frac{1}{4}$ of 8 = 2; $\frac{3}{4}$ of 8 = 3×2, or 6."

6. To find $\frac{2}{3}$ of 12, think: "$\frac{1}{3}$ of 12 = 4; $\frac{2}{3}$ of 12 = 2×4, or 8."

7. Tell the missing numbers.

a	*b*	*c*	*d*
$\frac{1}{3}$ of 12 = —	$\frac{1}{4}$ of 16 = —	$\frac{1}{8}$ of 16 = —	$\frac{1}{5}$ of 25 = —
$\frac{2}{3}$ of 12 = —	$\frac{3}{4}$ of 16 = —	$\frac{3}{8}$ of 16 = —	$\frac{2}{5}$ of 25 = —
$\frac{1}{3}$ of 36 = —	$\frac{3}{4}$ of 36 = —	$\frac{5}{8}$ of 16 = —	$\frac{3}{5}$ of 30 = —
$\frac{2}{3}$ of 36 = —	$\frac{3}{4}$ of 12 = —	$\frac{7}{8}$ of 16 = —	$\frac{4}{5}$ of 50 = —
$\frac{1}{6}$ of 12 = —	$\frac{3}{4}$ of 20 = —	$\frac{7}{8}$ of 56 = —	$\frac{1}{10}$ of 50 = —
$\frac{5}{6}$ of 12 = —	$\frac{3}{4}$ of 80 = —	$\frac{5}{8}$ of 40 = —	$\frac{3}{10}$ of 50 = —
$\frac{2}{3}$ of 24 = —	$\frac{3}{4}$ of 32 = —	$\frac{3}{8}$ of 24 = —	$\frac{7}{10}$ of 80 = —
$\frac{5}{6}$ of 24 = —	$\frac{3}{4}$ of 4 = —	$\frac{3}{8}$ of 8 = —	$\frac{9}{10}$ of 60 = —
$\frac{2}{3}$ of 18 = —	$\frac{3}{4}$ of 24 = —	$\frac{5}{8}$ of 32 = —	$\frac{3}{10}$ of 90 = —
$\frac{5}{6}$ of 18 = —	$\frac{3}{4}$ of 48 = —	$\frac{7}{8}$ of 32 = —	$\frac{5}{10}$ of 90 = —

Out at Recess

1. There are 18 girls in Miss Bender's room. One third of them played hopscotch at recess. How many of these girls played hopscotch?

2. One half of the girls played tag. How many of Miss Bender's girls played tag?

3. Twelve boys practiced throwing the basket ball into the basket. One fourth of them threw the ball in on the first try. How many balls were thrown in on the first try?

4. Two teams started a basket ball game. At the end of recess one team had scored 15 points and the other team two thirds as many points. What was the score?

5. Twenty children were at the slippery slide. After one slide, one fifth of these children ran off to play something else. How many children were left at the slide?

6. Thirty boys were practicing baseball. One third of these are on the school team. How many members of the school team were practicing?

7. There are 24 swings in the school grounds and half as many seesaws. How many seesaws are there?

8. Two thirds of the swings are being used. How many are not used?

9. Betty and Margaret made snapshots. They took 15 pictures. Only $\frac{2}{3}$ of the pictures were good. How many were failures?

10. The morning recess period is 20 minutes long. One fourth of this time is used for passing. How much time does this leave for play?

Keeping a Cash Account

Cash Received			Cash Paid Out		
1922					
Sept. 1	Money on hand	$ .35	Sept. 2	Car fare	$ .10
" 2	Digging potatoes	.25	" 8	School supplies	1.05
" 7	Carrying message	.10	" 9	Hair cut	.25
" 9	4 dozen eggs @ .45	1.80	" 10	Sunday School	.10
" 15	Picking up potatoes	.35	" 15	Birthday gift	.40
" 19	Cleaning rugs	.32	" 16	Mending shoes	.50
" 28	Raking leaves	.15	" 20	Candy	.03
" 30	2 qt. nuts @ .15	.30	" 25	Ice cream	.10
Oct. 1	Balance				

Frank keeps his account every month. Do you?

1. How much money did Frank earn in September?

2. How much money did Frank spend in September?

3. How much was his balance?

4. Rule a small book or a sheet of paper, and make Louise's account for the month of November. She received:

Nov. 1, Money on hand, $.30; Nov. 3, Taking care of baby, $.50; Nov. 10, Washing dishes 7 days at 5 cents a day; Nov. 22, A birthday present, $1.50.

She spent:

Nov. 5, Car fare, $.20; Nov. 10, Hair ribbons, $.55; Nov. 12, Candy, $.10; Nov. 18, Church, $.25; Nov. 20, Money lost on the street, $.15; Nov. 23, Ice cream, $.15.

How much had she Dec. 1?

5. Ask your father to give you an allowance each week. Keep your account for a month and then show it to him.

SURFACE MEASURE

The Square Inch

1. Using your ruler, measure this square. Can you tell why this square is called a *square inch?*

2. Cut a dozen square inches from paper. Draw on your paper a 2-inch square. Use as many of the square inches as you need to cover its surface.

3. How many square inches do you need?

The number of square inches in this surface is called its *area.*

4. What is the *area* of this 2-inch square?

5. Draw a 3-inch square. Find how many of your square inches are needed to cover it.

6. What is the area of this square?

7. Rose made a rug for her doll house. It was 6 inches long and 2 inches wide. Draw a picture of this rug and find how many square inches of the floor it will cover.

8. Her sister's rug was 9 inches long and 3 inches wide. Draw this rug.

You have not enough squares to cover this rug, so lay one row of your squares across this rug and then find how many rows you will need. Can you find the area without covering it all with square inches? How do you find the area of this rug? You can find any area in the same way.

The Square Foot

1. Using your foot rule, draw and cut a square 1 foot on a side. Why is this called a *square foot?*

2. Mention some surfaces in this room too large to be easily measured by a square inch.

3. Using the square foot, measure one of the blackboards.

4. Measure the teacher's desk.

5. Measure the glass of the window.

6. Measure the length and width of the floor of the room.

7. Letting $\frac{1}{2}$ inch stand for 1 foot, make a drawing to represent the floor.

8. Show how to find the area of the floor by marking off your drawing into $\frac{1}{2}$-inch squares.

9. How many rows are there?

10. What is the area of our room?

11. Find the area of a rug 6 ft. by 8 ft.

12. Find the area of a screen door 6 ft. by 3 ft.

The Square Yard

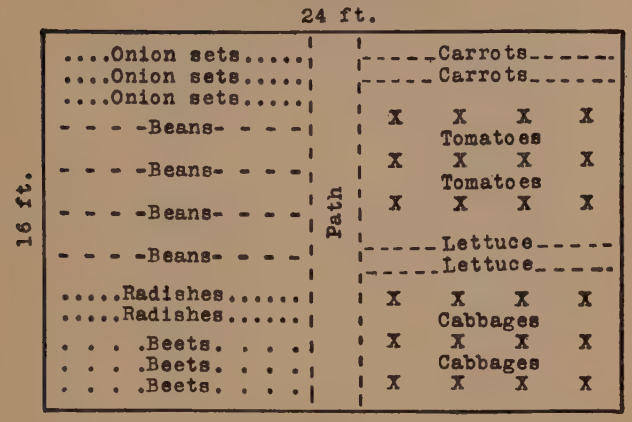
1. Draw on the board a square 3 ft. on a side.

2. Why is this called a *square yard?* Large surfaces are sometimes measured by square yards.

3. Divide your square yards into square feet. How many square feet are in a square yard?

sq. in. means *square inch* or *square inches.*
sq. ft. means *square foot* or *square feet.*
sq. yd. means *square yard* or *square yards.*

PROBLEMS ABOUT GARDENS



This is a plan of James's garden.

1. Find the area of it.

2. Find how many feet of wire fencing are needed to make a fence around the garden.

3. James put one post at each corner and six more posts at the sides. Find the cost of the posts at 25 cents each.

Henry and James worked this garden on equal shares.

The seeds cost as follows:

Onion sets	\$.30	Carrots	\$.05
Beans	.25	Tomato plants . . .	.40
Radishes	.05	Cabbage plants . .	.40
Beets	.10	Lettuce	.05

It costs \$.01 a square foot to prepare the ground. The boys sold their vegetables to the neighbors.

During the season they sold:

26 bunches of radishes @ 4 cents.
25 heads of lettuce @ 6 cents.
11 bunches of beets @ 5 cents.
10 quarts early beans @ 10 cents.
30 bunches of carrots @ 6 cents.
19 pounds ripe tomatoes @ 5 cents.
3 pecks green tomatoes @ 25 cents.
25 heads of cabbage @ 5 cents.
10 quarts of late beans @ 12 cents.
3 quarts of onions @ 15 cents.

Mother paid them $1 for the vegetables which she used.

4. Find how much money they received for all their vegetables.

5. Find how much they paid for seeds and for preparing the ground.

6. Find each boy's share of the profits.

7. On which kind of vegetable did they make the most money?

8. Draw a plan of a garden 10 feet by 8 feet, using one half inch for each foot.

9. Divide the garden into rows, and show what you will plant in each row.

10. Write some problems about this garden.

11. If you have a garden of your own, measure it tonight and tell us tomorrow the length and width. Then we will tell you the area of the garden.

PROBLEMS IN SURFACE MEASURE

Mother's Present

Mother had a present of a linen centerpiece 18 inches square.

1. Make a drawing and find how many square inches of linen there are in this centerpiece.

2. How many inches of lace are needed to go around the edge? Allow half a yard for fullness.

3. How many yards of lace must Mother buy to put on the edge of this piece?

4. Find the cost at $.50 a yard.

How much change will she have from $10 after paying for the lace?

Jack's Room

Jack has just moved into a new house. His room is 13 feet by 16 feet.

1. Draw a plan of the floor and show the size of a rug which would cover the floor, leaving a border of 2 feet on every side.

2. Find the area of the floor.

3. Find the area of the rug.

4. The 3 windows in Jack's room each have 2 panes of glass, 3 ft. by 3 ft. How many square feet of glass are there in the windows?

5. Find the cost of this glass at $.20 a square foot.

6. The mirror in his dresser is 3 ft. wide and 4 ft. high. Find the area of this mirror.

Father's New Walk

Father is building a new walk from the street to the front porch. The walk is 40 ft. long. Each stone is 5 ft. square. The walk is as wide as one stone.

1. How many stones are used?
2. Find the area of one stone.
3. When Frank clears the snow from all the walk, how many square feet of snow does he remove?

Buying Screens

Father has ordered new screens for the house.

Each window requires a piece of netting 3 ft. by 6 ft. There are 25 windows in the house.

1. Find how many square feet of wire netting are needed for all the windows.
2. Find the cost of this netting at 3 cents a square foot.
3. There are 2 doors, each requires a piece of netting 7 ft. by 3 ft. How much netting is needed for the doors?
4. How much will it cost?
5. Which costs more, the netting for the doors or that for the windows? how much more?
6. Find the entire cost of the screens, allowing $25.00 for the work and lumber.

ORIGINAL PROBLEMS

Bring in some problems you have made about the screens, windows, or rugs in your home.

TEST PROBLEMS

(Without Pencil)

1. Dick saved 10 cents a week for 6 weeks. Then he spent $\frac{1}{2}$ of his money for a book. How much did it cost?

2. Find the cost of 3 railway tickets at 40 cents each. How much is the change from a $2 bill?

3. When oranges are 50 cents a dozen, what part of a dozen can you buy for 25 cents?

4. Our train was due at 8:15. It was half an hour late. At what time did it arrive?

5. Milk is 15 cents a quart. How much will a gallon of milk cost?

6. Potatoes are $2.00 a bushel. Find the cost of a peck of potatoes. What is the cost of $1\frac{1}{2}$ pecks?

7. John's garden is 10 feet long and 7 feet wide. How many square feet does it contain?

8. One fare by boat to Albany is $1.50; a round-trip ticket costs $2.50. How much can you save by buying a round-trip ticket?

9. Isabel goes to school at 8 A.M. and returns at 5 P.M. How many hours is she away from home?

10. It takes 3 days to go from Chicago to Seattle. How many hours does it take?

11. How many 2-cent stamps can you buy for $1.00?

12. How many feet of wire fencing are needed to inclose a chicken yard 10 feet by 15 feet?

13. Eggs are $.48 a dozen. How much will $2\frac{1}{2}$ dozen cost?

14. How old was a boy in 1922 who was born in 1909?

15. Jack sold his bicycle for \$25 and gained \$3 by the sale. How much did the bicycle cost him?

16. Four boys bought a watermelon for \$.60 and shared the cost equally. How much did each boy pay?

17. Ruth's music lessons cost \$15 for 10 lessons. How much does each lesson cost?

18. How many quarts of ice cream are needed to serve 30 persons, if each quart serves 6 persons?

19. How many pint bottles can be filled from 2 gallons of grape juice?

20. Billy ate $\frac{1}{8}$ of a cake at supper. What part of the cake remained?

21. Father bought $1\frac{1}{2}$ lbs. of meat at 30 cents a pound. How much change should he receive from \$1?

22. Bert's suit cost \$25, his hat \$5, his shoes \$6.50, and his underclothing \$9. How much did all cost?

23. How many hours are there in one week?

24. \$25 is $\frac{1}{3}$ of Joe's money. How much money has he?

25. Father rode 10 miles twice a day every day for a week. How many miles did he travel?

26. James has 10 nickels and his brother has twice as many dimes. How much money have both boys?

27. From a box containing 20 oranges, 1 dozen were sold for \$.30. The others were sold at 2 cents each. For how much did all the oranges sell?

28. Bananas cost 30 cents a dozen. How many can you buy for 10 cents? What part of a dozen can you buy?

29. How many boxes, each holding 1 dozen eggs, are needed to contain 120 eggs?

30. Last year, Nora went to school 200 days. How many school weeks did she attend school?

31. Father's salary is \$200 a month. He saves $\frac{1}{5}$ of it. How much does he save in a year?

32. How many dimes are there in \$5?

33. A man bought a house for \$3,000. Repairs cost him \$500. Then he sold it for \$4,000. How much did he gain?

34. Dora gives \$.10 each Sunday to Sunday-School offering. How do you know that she gives more than \$5 a year?

35. At a party, there are 3 cakes to serve 24 persons. Into how many equal pieces must each cake be cut? What part of one cake will each person have?

36. Melons cost 25 cents for 3. How much will 9 melons cost?

37. Which is cheaper, to buy oranges at 30 cents a dozen or 3 for 10 cents? How much is saved on a dozen?

38. What is the change from a dollar, after buying 2 yards of ribbon at 15 cents a yard?

39. How many pint baskets are needed to hold $\frac{1}{2}$ pk. of currants?

40. Sara's dress requires $3\frac{1}{4}$ yards of cloth and Emma's $5\frac{1}{2}$ yards. How many yards of cloth are needed for both dresses?

41. Little David is $3\frac{1}{2}$ feet tall and his big brother is $2\frac{1}{4}$ ft. taller. How tall is his brother?

TEST PROBLEMS

(With Pencil)

1. Mother bought 16 grapefruit at \$.06 each and $1\frac{1}{2}$ dozen oranges at \$.60 a dozen. How much did all cost?

2. Max saved \$1.25 a week for a month. Then he spent \$1.35. How much money had he left?

3. Milk costs \$.15 a qt. Find the cost of 4 gal. of milk.

4. How many 3-in. badges can Agnes cut from two yards of ribbon?

5. Potatoes sell for \$.40 a peck. How much must I pay for 4 bu. of potatoes?

6. Find the cost of a whole-fare and a half-fare ticket, when the whole fare is \$12.10.

7. A steamer makes one trip in $4\frac{1}{2}$ days. How many hours does it take?

8. A third of 12 doz. oranges are bad. How many oranges are good?

9. Coal is \$10 per ton. Father used 18 tons. How much less than \$280 is his coal bill?

10. Father sold 30 eggs from a box which contained 5 dozen eggs. How many eggs remained in the box?

11. Mother had a rope 45 ft. long. She cut off 2 jumping ropes, each 8 ft. long. How many feet of rope were left?

12. Mother's flower garden is 12 ft. by 14 ft. How many square feet are in her garden?

13. Sam's garden is 18 ft. by 20 ft. How many feet of wire fencing does he need to build a fence around it?

14. Tom can walk five blocks in 5 minutes. How many blocks can he walk in an hour?

15. Marion bought 3 dolls at $.25 each. She had $[illegible] left. How much money had she at first?

16. Father's telephone costs $3 per month. During the year he had extra calls amounting to $8.75. Find the cost of his telephone for the year.

17. Four boys hired a boat for $2.40. They shared the cost equally. *What part* of the cost should each one pay? *How much* should each one pay?

18. James put a peck of chestnuts into pint cans. How many cans did he use?

19. One third of the children in a class of 39 were absent on a stormy day. How many children were present?

20. Hector's pony cost $150, his cart cost half as much, and his saddle one sixth as much. How much did all cost?

21. Edith made 16 pounds of candy for a fair. She put it into boxes each holding a quarter of a pound. How many boxes did she use?

22. How much will two 5-gallon cans of gasoline cost when it is worth $.26 a gallon?

23. Henry's allowance for June was $2. He gave $.02 each day to the Red Cross. How much of his money did he have for other things?

24. Which goes farther, an automobile going 33 miles an hour for 5 hours or one going 28 miles an hour for 6 hours? how much farther?

25. Our schools must keep 180 days each year. How many weeks of school must we have?

26. Ned caught 48 pounds of fish during his vacation. He sold the fish at \$.29 per lb. How much money did he make?

27. Which cost more, 9 Jersey cows at \$150 each or 12 Ayrshires at \$100 each? how much more?

28. Robert and James helped Father pick up potatoes. Robert filled 3 bushel baskets; James filled 6 peck measures and said, "I have picked up half as many potatoes as you have." Was he right? Tell how you know.

29. Bob works at a grocery every day after school and on Saturdays. He earns \$.50 a day. How much does he earn in a week? How long will it take him to earn the money for a \$27 bicycle?

30. Which will cover less of the floor, a rug 9 ft. $\times$ 12 ft. or one 8 ft. $\times$ 14 ft.?

31. How many feet of fence are needed to inclose a garden 10 ft. long and 18 ft. wide? Find the cost of this fence at \$.55 a foot. Make a picture to be sure you are right.

32. Father bought 600 postal savings stamps at 10¢ each and divided them equally among his 3 boys. How much was Jack's share of the stamps worth?

33. 192 desks are to be put into a new study-room. There are to be 16 equal rows. How many desks should be in each row? Estimate first. Then find how nearly right your answer was.

34. Mrs. Johnson bought two hats for \$10.75 each. She gave the clerk a \$50 bill. How much change did he give her?

35. William went to a boys' camp last summer. His railroad fare was \$10.94, board \$138, other expenses \$14.75. His uncle sent him a check for \$200. How much money did he have left, after paying all expenses?

36. Mr. Andrews pays \$35 a month for rent. How much does his rent cost for 5 years?

37. A gardener planted 1,000 cabbage plants in 25 equal rows. How many plants were in each row? Estimate your answer first.

38. Fred wants to buy two pairs of skates costing \$1.75 each. He has saved \$.98. How much more money does he need to pay for the skates?

39. Ruth's book ends with Chapter XXXIV. When she has read through Chapter XXIX, how many more chapters has she to read?

40. How many oz. are there in $\frac{1}{8}$ of a lb.? in $\frac{1}{4}$ of a lb.? in $\frac{3}{4}$ of a lb.?

41. The fourth-grade children bought 2 pictures for their room. The pictures cost \$6.80 each. There were 40 children in the class. Find each one's share of the cost.

42. How many weeks are there in a year? How many weeks are there in $\frac{1}{2}$ of a year? How many weeks are there in $\frac{1}{4}$ of a year?

43. A train which should arrive at 8:45 is 4 hr. and 15 min. late. At what time does it arrive?

44. A grocer bought 30 gallons of syrup and sold it by the quart. How much did he get for it at \$.45 a quart?

45. In 228 months there are how many years?

FOURTH-GRADE TEST GROUPS

Addition

Each of the following examples should be added in 1 minute. Do not copy the numbers. Write answers only.

1.	2.	3.	4.	5.
675	346	427	812	256
132	225	314	663	725
415	403	935	594	490
276	189	621	739	388
153	576	583	282	615
568	784	768	758	332

6.	7.	8.	9.	10.
4,372	5,623	3,182	2,314	1,843
1,468	4,156	4,317	5,143	4,922
5,320	7,245	2,563	1,635	2,279
4,967	3,361	1,054	4,852	8,768
2,115	2,874	3,618	6,377	3,574

11.	12.	13.	14.
$68.29	$40.09	$ 6.75	$934.26
5.87	6.86	98.27	75.93
69.53	984.36	7.96	387.56
87.27	25.94	800.27	.98
.58	86.72	5.96	56.34

Copy and add each of these examples correctly in 2 minutes.

15. $3.79; $98.45; $15; $8.04; $.89

16. $98; $3.69; $.56; $5.75; $100.

17. $605; $13.27; $.32; $28.45; $65.

Subtraction

Subtract each of the following groups in 3 minutes. Write answers only.

	1.	2.	3.	4.	5.
A.	2,632 354	1,365 528	1,522 290	1,451 618	2,314 456
B.	1,625 731	1,582 956	2,155 387	4,036 451	1,312 573
C.	\$15.20 6.40	\$18.16 7.43	\$12.51 6.25	\$23.04 5.76	\$10.04 1.67

Subtract each of the following groups in $3\frac{1}{2}$ minutes. Write answers only.

	1.	2.	3.	4.	5.
A.	2,534 1,618	4,360 1,572	3,907 1,326	5,009 1,237	7,080 3,756
B.	\$15.23 12.96	\$21.60 14.75	\$30.40 16.58	\$52.15 31.67	\$40.03 21.56

	1.	2.	3.	4.
C.	\$48.61 9.60	\$150.48 13.08	\$417.75 86.90	\$200.00 7.59

Copy these numbers correctly and in 1 minute find the difference between each pair of them. Look carefully to see which is the larger number in each pair.

1. \$40 and \$36.29
2. \$158 and \$7.56
3. \$30.25 and \$98.75
4. \$16.75 and \$45.23
5. \$39 and \$17.48
6. \$45 and \$60.27
7. \$109 and \$325
8. \$14.20 and \$100

Multiplication

Multiply each of the following groups in 7 minutes after copying.

A.	*B.*	*C.*
1. 608 ×3	1. 807 ×9	1. 2,917 ×8
2. 386 ×4	2. 365 ×8	2. $39.01×6
3. 519 ×5	3. 349 ×7	3. $15.69×9
4. $8.27×6	4. $5.46×6	4. $65.18×7
5. $2.70×7	5. $7.63×5	5. $80.24×5
6. $4.08×8	6. $4.09×4	6. $41.72×3
7. $2.43×9	7. $5.39×3	7. $75.12×4

Multiply each of the following groups in 10 minutes after copying.

A.	*B.*	*C.*
1. 60×1,432	1. 62×2,706	1. 40×8,675
2. 75×4,160	2. 54×1,325	2. 38×1,640
3. 46×3,258	3. 91×2,360	3. 65×2,736
4. 34×6,049	4. 47×3,109	4. 72×5,478
5. 83×5,837	5. 80×5,267	5. 29×6,281
6. 19×3,096	6. 13×3,000	6. 18×1,309

Multiply each of the following groups in from 10 to 15 minutes after copying.

A.	*B.*	*C.*
1. 154×1,576	1. 230×2,461	1. 124×4,153
2. 215×3,814	2. 485×2,860	2. 362×5,327
3. 326×2,487	3. 143×7,692	3. 450×1,816
4. 165×5,209	4. 516×3,165	4. 718×2,863
5. 431×6,875	5. 218×6,184	5. 596×5,476
6. 180×3,040	6. 706×1,987	6. 309×1,090

Division

Do these 6 examples in 6 minutes after copying.

1. $758 \div 9$
2. $595 \div 8$
3. $\$21.49 \div 7$
4. $\$29.58 \div 6$
5. $\$425.45 \div 5$
6. $\$630.04 \div 4$

Do each of these groups in 10 minutes after copying.

A	*B*	*C*
1. $45{,}536 \div 32$	1. $52{,}384 \div 41$	1. $20{,}650 \div 25$
2. $39{,}379 \div 53$	2. $28{,}089 \div 34$	2. $34{,}472 \div 62$
3. $28{,}365 \div 61$	3. $40{,}824 \div 72$	3. $22{,}464 \div 36$
4. $32{,}042 \div 74$	4. $20{,}601 \div 63$	4. $44{,}226 \div 81$

D	*E*	*F*
1. $26{,}523 \div 421$	1. $30{,}525 \div 407$	1. $101{,}185 \div 413$
2. $15{,}275 \div 325$	2. $18{,}504 \div 514$	2. $141{,}050 \div 325$
3. $15{,}364 \div 334$	3. $22{,}681 \div 613$	3. $193{,}308 \div 534$

Fractions

Time yourself on group *A* and then see later if you can do groups *B* and *C* in the same or less time.

A				*B*				*C*			
1. $1\frac{1}{2} + \frac{1}{2}$	4. $5\frac{3}{4} + 1\frac{1}{4}$	7. $2\frac{1}{2} + \frac{1}{8}$	10. $2\frac{3}{4} - \frac{1}{4}$	1. $2\frac{1}{4} + 6\frac{1}{4}$	4. $1\frac{1}{4} + 3\frac{1}{8}$	7. $6\frac{3}{8} - 2$	10. $5\frac{1}{2} - \frac{3}{8}$	1. $4\frac{1}{3} + 3\frac{1}{3}$	4. $3\frac{1}{3} + 1\frac{1}{6}$	7. $3\frac{1}{6} - 2\frac{1}{6}$	10. $7\frac{1}{2} - 2\frac{1}{6}$
2. $2\frac{1}{2} + 3\frac{1}{2}$	5. $4\frac{1}{4} + 2\frac{1}{4}$	8. $3\frac{1}{2} + 1$	11. $7\frac{3}{4} - \frac{1}{2}$	2. $3\frac{1}{2} + 2\frac{1}{4}$	5. $5\frac{3}{4} + 2\frac{1}{8}$	8. $7\frac{3}{4} - 5\frac{1}{4}$	11. $8\frac{7}{8} - 3\frac{1}{2}$	2. $1\frac{2}{3} + 4\frac{1}{3}$	5. $2\frac{1}{6} + 5\frac{1}{2}$	8. $4\frac{5}{6} - 1\frac{1}{6}$	11. $6\frac{5}{6} - 1\frac{1}{2}$
3. $3\frac{1}{4} + \frac{3}{4}$	6. $3\frac{1}{2} + \frac{1}{4}$	9. $6\frac{1}{2} - 2\frac{1}{2}$	12. $5\frac{3}{8} - \frac{1}{8}$	3. $6\frac{1}{8} + 1\frac{1}{2}$	6. $3\frac{5}{8} + 3\frac{1}{4}$	9. $4\frac{1}{4} - 1\frac{1}{8}$	12. $10\frac{1}{2} - 4\frac{1}{4}$	3. $2\frac{1}{6} + 4\frac{1}{6}$	6. $4\frac{2}{3} + 5\frac{1}{6}$	9. $5\frac{2}{3} - 3\frac{1}{6}$	12. $8\frac{1}{3} - 3\frac{1}{6}$

General Tests

Test I

1. Add. 623
   516
   845
   231
   575
   324

2. 16 yd. = how many ft.?

3. 7,624
   −831

4. $8.75
   ×15

5. Write Arabic numerals for XIV, ÇIX.

6. Nellie bought 2 pounds of butter at 38¢ a pound and gave the grocer $1. How much change did she receive?

Test II

1. Add. 3,756
   4,183
   2,625
   1,032
   5,106

2. Change 7 days to hours.

3. $9.25
   −1.37

4. $8\frac{1}{2} + 5\frac{1}{4}$

5. 37,599 ÷ 83

6. John reached Robert's house at 8:15 and left half an hour later. At what time did John leave Robert's house?

Test III

1. Add. $15.26
   7.15
   14.38
   .76
   83.50

2. Change 6 pk. to quarts.

3. 468 × 534

4. $12\frac{1}{2} - 5\frac{1}{4}$

5. $\frac{2}{3}$ of 36 = ?

6. A garden is 32 ft. long and 20 ft. wide. How far is it around the garden?

Test IV

1. Add. $42\frac{1}{8}$
$96\frac{5}{8}$
$14\frac{1}{8}$

2. How many ounces are there in 27 pounds?
3. $17{,}376 \div 48$
4. Find $\frac{3}{4}$ of 20
5. $6{,}400 - 1{,}765$

6. A man works 8 hours a day at 70 cents an hour for 6 days. How much does he earn?

Test V

1. Add. 876
5
28
903
82
615
37

2. Change 24 pk. to bushels.
3. Find the area of a building lot 60 ft. wide and 150 ft. deep.
4. $22{,}472 \div 424$
5. $37\frac{5}{6} - 15\frac{1}{2}$

6. Bob has saved \$12 toward a \$39 bicycle. If he saves \$3 a month, in how many months will he have enough to buy the bicycle?

Test VI

1. Minuend \$60; subtrahend \$.60. Find the difference.
2. Multiplier 90; multiplicand \$5.08. Find the product.
3. Find the sum of these addends: \$4.25; \$.96; \$19.04; \$8.
4. Divisor 180; dividend 55,620. Find the quotient.

5. Mary saves 25¢ of her allowance each week. How much will she save in a year of 52 weeks?

6. How much more will she need to buy a wrist watch costing $30.75?

Test VII

1. Father bought shoes for Ruth, Mary, and James at $5.98 a pair. How much change did he get from $20?

2. The price of a radio set is $75. Frank bought the parts separately for $45.25 and assembled them. How much did he save by doing the work himself?

3. Mary made two bags, using $1\frac{1}{2}$ yd. of ribbon for one and $2\frac{1}{2}$ for the other. How much did it cost at 58¢ a yard?

4. Tom wants to buy a Boy Scout outfit which costs $52. When he has saved $\frac{1}{4}$ of the money, his aunt will give him the rest of it. How much must he save? How much will she give him?

5. Mother buys 3 quarts of milk every day. At 16¢ a quart, how much does she pay for milk in November?

Test VIII

1. Copy and fill blanks.

$\frac{1}{2}$ yd. = — in.	$\frac{1}{2}$ lb. = — oz.	$\frac{1}{2}$ bu. = — pk.
$\frac{3}{4}$ yd. = — in.	$\frac{1}{8}$ lb. = — oz.	$\frac{1}{2}$ bu. = — qt.
$\frac{1}{3}$ yd. = — in.	$\frac{1}{4}$ lb. = — oz.	$\frac{1}{2}$ gal. = — qt.
$\frac{2}{3}$ yd. = — in.	$\frac{3}{4}$ lb. = — oz.	$\frac{1}{2}$ qt. = — pt.

2. A party of 15 Girl Scouts spent $265.50 for a summer camp. Find each one's share of the expense.

3. At 65¢ a peck find the cost of a bushel of apples.

4. On a stormy day $\frac{1}{8}$ of the children in a school of 1,024 pupils were absent. How many were present?

SUBTRACTION DRILL EXAMPLES

(Continued from p. 25)

Group **9.**

a	*b*	*c*	*d*	*e*
882	600	602	7,032	4,026
−149	−196	−48	−3,825	−829

Group **10.**

a	*b*	*c*	*d*	*e*
875	702	800	3,621	3,260
−129	−196	−49	−1,297	−970

Group **11.**

a	*b*	*c*	*d*	*e*
793	462	321	5,720	4,003
−179	−197	−89	−2,968	−2,967

Group **12.**

a	*b*	*c*	*d*	*e*
991	943	734	8,932	5,082
−446	−269	−82	−2,687	−1,693

Group **13.**

a	*b*	*c*	*d*	*e*
850	522	624	5,326	4,008
−238	−169	−96	−1,897	−1,627

Group **14.**

a	*b*	*c*	*d*	*e*
772	825	835	4,825	8,320
−234	−269	−49	−1,973	−1,960

Group **15.**

a	*b*	*c*	*d*	*e*
842	420	508	4,362	4,000
−119	−169	−85	−1,297	−1,382

Group **16.**

a	*b*	*c*	*d*	*e*
856	900	600	5,273	2,000
−219	−266	−85	−1,968	−687

Group **17.**

a	*b*	*c*	*d*	*e*
981	580	632	6,666	1,290
−437	−196	−89	−1,973	−756

Group **18.**

a	*b*	*c*	*d*	*e*
690	673	806	5,555	8,026
−145	−196	−48	−2,999	−2,493

Group **19.**

a	*b*	*c*	*d*	*e*
984	925	821	6,273	8,000
−279	−696	−93	−1,894	−2,697

Group **20.**

a	*b*	*c*	*d*	*e*
893	932	142	2,082	4,269
−227	−187	−69	−1,369	−2,083

Group **21.**

a	*b*	*c*	*d*	*e*
780	693	146	6,249	2,283
−109	−149	−82	−3,982	−989

Group **22.**

a	*b*	*c*	*d*	*e*
876	802	329	5,369	6,020
−248	−167	−84	−1,892	−1,835

Group **23.**

a	*b*	*c*	*d*	*e*
763	840	432	2,082	3,267
−234	−197	−96	−1,627	−1,497

Group **24.**

a	*b*	*c*	*d*	*e*
752	925	802	2,082	2,000
−214	−269	−93	−1,369	−832

Group **25.**

a	*b*	*c*	*d*	*e*
982	873	620	7,269	6,000
−247	−296	−98	−1,835	−2,689

Group **26.**

a	*b*	*c*	*d*	*e*
893	402	181	4,829	2,170
−245	−196	−96	−1,634	−1,093

Group **27.**

a	*b*	*c*	*d*	*e*
760	508	420	4,293	7,020
−234	−269	−93	−1,234	−1,030

Group **28.**

a	*b*	*c*	*d*	*e*
287	492	608	6,232	4,000
−149	−198	−42	−1,984	−1,692

Group **29.**

a	*b*	*c*	*d*	*e*
596	970	682	7,362	4,627
−139	−199	−49	−1,496	−1,000

Group **30.**

a	*b*	*c*	*d*	*e*
482	432	772	2,093	9,873
−147	−169	−38	−1,672	−8,097

Group **31.**

a	*b*	*c*	*d*	*e*
583	542	602	5,946	4,720
−106	−167	−79	−2,369	−938

Group **32.**

a	*b*	*c*	*d*	*e*
492	892	400	8,203	3,021
−139	−198	−65	−1,697	−1,967

Group **33.**

a	*b*	*c*	*d*	*e*
584	600	124	4,930	4,002
−239	−197	−79	−1,879	−1,097

Group **34.**

a	*b*	*c*	*d*	*e*
675	832	203	2,802	8,327
−127	−196	−99	−1,469	−698

Group **35.**

a	*b*	*c*	*d*	*e*
983	508	382	8,029	2,083
−149	−239	−46	−1,968	−759

Group **36.**

a	*b*	*c*	*d*	*e*
772	821	401	3,020	4,020
−134	−469	−83	−1,469	−785

Group **37.**

a	*b*	*c*	*d*	*e*
775	625	620	8,329	7,021
−139	−196	−83	−1,687	−983

Group **38.**

a	*b*	*c*	*d*	*e*
893	602	109	6,253	4,826
−144	−149	−82	−1,897	−935

Group **39.**

a	*b*	*c*	*d*	*e*
575	624	322	6,273	6,930
−149	−199	−49	−1,894	−989

Group **40.**

a	*b*	*c*	*d*	*e*
614	802	888	6,259	3,820
−205	−179	−27	−2,983	−1,975

Group **41.**

a	*b*	*c*	*d*	*e*
723	407	300	4,029	3,902
−117	−148	−42	−697	−1,764

Group **42.**

a	*b*	*c*	*d*	*e*
682	482	184	6,029	4,923
−149	−198	−36	−1,828	−2,796

Group **43.**

a	*b*	*c*	*d*	*e*
590	970	602	5,826	3,090
−128	−194	−42	−1,979	−1,279

ADDITION DRILL EXAMPLES

(Continued from p. 36)

Group 6.

a	*b*	*c*	*d*	*e*
44	93	98	987	285
82	49	27	296	36
69	7	34	382	987
17	26	63	459	49
83	38	89	736	382

Group 7.

a	*b*	*c*	*d*	*e*
73	79	926	493	383
64	36	34	286	69
19	4	735	751	294
87	13	29	829	154
46	27	46	396	96

Group 8.

a	*b*	*c*	*d*	*e*
91	83	36	926	734
34	6	85	847	65
72	27	92	293	496
68	34	3	697	32
34	83	14	154	7

Group 9.

a	*b*	*c*	*d*	*e*
82	64	83	367	409
97	93	69	294	39
16	75	75	429	683
78	8	84	385	27
34	6	27	926	985

Group **10.**

a	*b*	*c*	*d*	*e*
54	33	69	967	729
27	17	73	382	49
36	29	24	149	36
97	6	85	586	282
42	14	29	224	69

Group **11.**

a	*b*	*c*	*d*	*e*
28	93	62	382	690
34	62	73	496	99
92	75	84	735	84
66	8	96	281	997
41	5	75	436	388

Group **12.**

a	*b*	*c*	*d*	*e*
6	71	65	579	936
17	8	74	684	28
29	9	9	234	492
93	16	36	963	97
84	34	85	285	38

Group **13.**

a	*b*	*c*	*d*	*e*
96	66	34	324	979
71	77	27	971	29
39	88	93	326	48
62	99	82	408	827
75	44	65	783	966

Group **14.**

a	*b*	*c*	*d*	*e*
45	63	38	362	483
82	71	97	751	27
73	29	22	839	694
69	85	85	267	38
84	92	39	493	486

Group **15.**

a	*b*	*c*	*d*	*e*
36	75	45	967	489
92	81	39	34	728
75	97	75	298	34
87	69	63	625	73
36	40	29	439	682

Group **16.**

a	*b*	*c*	*d*	*e*
96	56	92	487	325
87	29	81	96	46
79	17	7	284	987
62	92	59	733	58
85	86	38	49	483

Group **17.**

a	*b*	*c*	*d*	*e*
94	75	69	734	835
13	36	73	896	96
10	92	28	728	275
96	84	43	154	432
75	48	36	239	687

Group **18.**

a	*b*	*c*	*d*	*e*
67	49	33	587	487
86	39	24	392	36
92	27	79	627	293
73	82	36	855	45
84	75	85	329	8

Group **19.**

a	*b*	*c*	*d*	*e*
69	54	43	385	579
75	62	78	263	36
89	96	96	975	280
78	87	39	438	946
67	5	44	267	703

Group **20.**

a	*b*	*c*	*d*	*e*
56	67	55	285	97
79	36	99	337	286
36	92	86	825	347
83	8	88	675	286
27	75	79	839	523

Group **21.**

a	*b*	*c*	*d*	*e*
92	17	67	675	536
87	8	28	296	97
65	39	39	873	933
44	92	44	149	824
96	86	66	836	9

Group **22.**

a	*b*	*c*	*d*	*e*
54	28	56	879	768
26	37	36	38	796
73	6	92	453	35
12	9	85	875	853
95	18	75	29	596

Group **23.**

a	*b*	*c*	*d*	*e*
42	27	63	834	207
86	64	97	796	460
91	83	69	37	380
79	96	28	995	462
34	29	47	87	890

Group **24.**

a	*b*	*c*	*d*	*e*
92	59	75	325	308
87	73	6	687	27
59	82	93	39	963
68	69	27	582	249
75	72	89	900	832

Group **25.**

a	*b*	*c*	*d*	*e*
59	65	54	825	334
32	79	26	49	27
67	32	35	362	692
85	97	27	731	983
92	84	48	582	425

Group **26.**

a	*b*	*c*	*d*	*e*
29	9	47	896	27
34	28	9	759	239
63	30	36	832	462
78	75	82	294	837
35	62	196	538	49

Group **27.**

a	*b*	*c*	*d*	*e*
69	13	129	286	332
72	29	67	793	496
83	38	396	824	79
45	42	42	979	827
82	66	85	825	438

Group **28.**

a	*b*	*c*	*d*	*e*
73	96	83	385	573
26	7	29	226	895
49	35	6	934	28
87	42	49	697	362
42	16	27	124	497

Group **29.**

a	*b*	*c*	*d*	*e*
73	19	18	384	29
89	7	26	297	281
35	16	81	734	370
42	5	94	275	164
26	92	33	638	423

Group **30.**

a	*b*	*c*	*d*	*e*
87	92	99	595	49
62	63	88	936	372
93	75	77	224	67
27	83	66	483	842
91	20	55	749	933

Group **31.**

a	*b*	*c*	*d*	*e*
42	46	15	586	38
36	79	26	273	754
79	26	89	948	269
35	32	34	797	32
24	41	42	632	725

Group **32.**

a	*b*	*c*	*d*	*e*
35	57	40	675	54
24	93	89	496	926
92	85	16	973	223
38	74	27	245	53
49	26	34	328	999

Group **33.**

a	*b*	*c*	*d*	*e*
42	46	94	324	650
67	73	27	897	973
93	24	33	362	64
4	92	46	489	875
15	46	63	236	27

Group **34.**

a	*b*	*c*	*d*	*e*
45	66	33	363	409
32	72	22	639	827
69	85	77	825	392
75	93	66	763	426
48	27	44	498	772

Group **35.**

a	*b*	*c*	*d*	*e*
49	95	36	387	975
73	63	42	446	286
26	67	93	829	327
22	28	75	973	49
44	34	62	426	33

Group **36.**

a	*b*	*c*	*d*	*e*
49	34	27	906	309
64	26	34	127	273
32	73	23	432	64
71	82	92	875	9
98	95	79	334	821

Group **37.**

a	*b*	*c*	*d*	*e*
47	36	46	372	889
45	29	33	496	978
19	73	9	628	697
36	84	27	334	586
27	90	48	728	999

Group **38.**

a	*b*	*c*	*d*	*e*
46	65	39	275	675
92	27	47	384	286
38	93	82	725	973
77	84	93	835	45
26	29	74	325	9

Group **39.**

a	*b*	*c*	*d*	*e*
61	36	47	693	449
27	97	9	244	983
98	29	33	282	697
34	42	55	739	499
49	87	24	624	23

Group **40.**

a	*b*	*c*	*d*	*e*
40	60	83	326	697
27	72	96	725	985
36	43	42	324	293
85	82	73	986	978
69	92	84	324	30

Group **41.**

a	*b*	*c*	*d*	*e*
27	45	82	483	508
36	27	73	269	67
92	36	64	473	3
45	92	25	723	825
32	85	9	933	49

Group **42.**

a	*b*	*c*	*d*	*e*
44	59	62	632	889
63	63	73	496	987
78	87	18	327	763
29	29	44	468	42
45	18	57	342	7

Group **43.**

a	*b*	*c*	*d*	*e*
67	36	93	286	47
32	97	79	437	296
94	82	43	924	3
66	29	28	283	49
73	18	45	795	587

Group **44.**

a	*b*	*c*	*d*	*e*
64	35	69	679	675
75	27	73	382	829
96	69	42	467	38
32	82	58	293	5
85	45	67	871	726

Group **45.**

a	*b*	*c*	*d*	*e*
67	36	36	575	809
94	92	95	286	905
32	85	82	93	105
75	27	9	785	76
84	38	13	428	20

MULTIPLICATION DRILL EXAMPLES

(Continued from p. 61)

Group **8.**

a	*b*	*c*	*d*	*e*
48	489	389	189	413
×2	×2	×3	×4	×5

Group **9.**

a	*b*	*c*	*d*	*e*
93	347	167	173	693
×2	×2	×3	×4	×5

Group **10.**

a	*b*	*c*	*d*	*e*
49	198	350	276	805
×2	×2	×3	×4	×5

Group **11.**

a	*b*	*c*	*d*	*e*
62	209	291	473	509
×2	×2	×3	×4	×5

Group **12.**

a	*b*	*c*	*d*	*e*
57	264	246	186	168
×2	×2	×3	×4	×5

Group **13.**

a	*b*	*c*	*d*	*e*
78	401	292	380	1,296
×2	×2	×3	×4	×5

Group **14.**

a	*b*	*c*	*d*	*e*
99	350	167	659	154
×2	×2	×3	×4	×5

Group **15.**

a	*b*	*c*	*d*	*e*
43	189	561	182	1,094
×2	×2	×3	×4	×5

Group **16.**

a	*b*	*c*	*d*	*e*
75	390	269	329	981
×2	×2	×3	×4	×5

Group **17.**

a	*b*	*c*	*d*	*e*
84	197	179	192	706
×2	×2	×3	×4	×5

Group **18.**

a	*b*	*c*	*d*	*e*
18	460	276	870	305
×2	×2	×3	×4	×5

Group **19.**

a	*b*	*c*	*d*	*e*
51	345	106	209	670
×2	×2	×3	×4	×5

Group **20.**

a	*b*	*c*	*d*	*e*
59	408	239	125	843
×2	×2	×3	×4	×5

Group **21.**

a	*b*	*c*	*d*	*e*
63	381	267	152	1,058
×2	×2	×3	×4	×5

Group **22.**

a	*b*	*c*	*d*	*e*
37	293	260	263	309
×2	×2	×3	×4	×5

Group **23.**

a	*b*	*c*	*d*	*e*
44	362	357	167	762
×2	×2	×3	×4	×5

Group **24.**

a	*b*	*c*	*d*	*e*
28	468	389	726	731
×2	×2	×3	×4	×5

Group **25.**

a	*b*	*c*	*d*	*e*
26	709	700	382	649
×2	×2	×3	×4	×5

Group **26.**

a	*b*	*c*	*d*	*e*
47	189	293	640	528
×2	×2	×3	×4	×5

Group **27.**

a	*b*	*c*	*d*	*e*
98	250	148	709	675
×2	×2	×3	×4	×5

Group **28.**

a	*b*	*c*	*d*	*e*
87	269	118	635	719
×2	×2	×3	×4	×5

Group **29.**

a	*b*	*c*	*d*	*e*
73	389	287	982	632
×2	×2	×3	×4	×5

Group **30.**

a	*b*	*c*	*d*	*e*
46	376	274	865	736
×2	×2	×3	×4	×5

Group **31.**

a	*b*	*c*	*d*	*e*
24	460	298	728	793
×2	×2	×3	×4	×5

Group **32.**

a	*b*	*c*	*d*	*e*
65	109	145	371	287
×2	×2	×3	×4	×5

Group **33.**

a	*b*	*c*	*d*	*e*
90	374	290	479	906
×2	×2	×3	×4	×5

Group **34.**

a	*b*	*c*	*d*	*e*
79	458	149	618	402
×2	×2	×3	×4	×5

Group **35.**

a	*b*	*c*	*d*	*e*
17	375	309	362	627
×2	×2	×3	×4	×5

Group **36.**

a	*b*	*c*	*d*	*e*
19	253	174	790	496
×2	×2	×3	×4	×5

Group **37.**

a	*b*	*c*	*d*	*e*
64	354	280	184	902
×2	×2	×3	×4	×5

Group **38.**

a	*b*	*c*	*d*	*e*
92	406	265	193	609
×2	×2	×3	×4	×5

Group **39.**

a	*b*	*c*	*d*	*e*
61	360	153	225	250
×2	×2	×3	×4	×5

Group **40.**

a	*b*	*c*	*d*	*e*
96	203	76	247	339
×2	×2	×3	×4	×5

Group **41.**

a	*b*	*c*	*d*	*e*
85	428	289	191	728
×2	×2	×3	×4	×5

Group **42.**

a	*b*	*c*	*d*	*e*
70	401	47	107	800
×2	×2	×3	×4	×5

ADDITION AND SUBTRACTION PRACTICE GROUPS

(Continued from p. 77)

Group **8.**

a. Subtract 27 from 305.
b. 1,023 − 769 =
c. 627 + 983 + 325 + 80 + 8 + 18 =
d. Find the sum of 8,002; 9,265; 3,359; 8,397.

Group **9.**

a. Subtract 229 from 314.
b. Subtract 382 from 1,721.
c. Add 729; 834; 2,967; 735; 29; 100.
d. Find the sum of 293; 875; 296; 732; 542; 936.

Group **10.**

a. Subtract 98 from 605.
b. Find the difference between 729 and 2,035.
c. Add 69; 38; 27; 502; 369; 21.
d. Find the sum of 189; 625; 382; 9,732; 8,796.

Group **11.**

a. Subtract 97 from 305.
b. Find the difference between 798 and 2,372.
c. Add 790; 843; 96; 293; 19.
d. Find the sum of 26; 392; 287; 5,683; 75.

Group **12.**

a. Subtract 26 from 109.
b. Find the difference between 703 and 2,035.
c. Add 375; 698; 343; 27; 96.
d. Find the sum of 8,293; 9,785; 4,962.

Group **13.**

a. Subtract 49 from 304.
b. Find the difference between 1,029 and 634.
c. Add 296; 875; 32; 403; 973; 621.
d. Find the sum of 3,968; 297; 4,873; 796.

Group **14.**

a. Subtract 79 from 203.
b. Find the difference between 1,205 and 729.
c. Add 629; 857; 33; 5; 974; 285.
d. 1,685+9,235+8,732+5,321=

Group **15.**

a. 109−29
b. Find the difference between 396 and 7,025.
c. Add 596; 38; 54; 296; 821; 53.
d. 3,294+6,872+9,685+3,296=

Group **16.**

a. Subtract 38 from 203.
b. Find the difference between 329 and 6,021.
c. Add 629; 394; 283; 72; 53; 989.
d. Find the sum of 6,293; 8,758; 6,975; 2,093.

Group **17.**

a. Subtract 93 from 807.
b. Find the difference between 3,092 and 927.
c. Add 603; 987; 53; 82; 452; 698.
d. 6,973+7,399+2,879+596+3,825=

Group **18.**

a. Subtract 23 from 201.
b. Find the difference between 329 and 8,003.
c. Add 627; 799; 532; 79; 84; 785.
d. 140+342+6+17+79=

Group **19.**

a. Subtract 39 from 802.
b. Find the difference between 309 and 6,011.
c. Add 629; 85; 72; 6; 785; 999; 284.
d. Find the sum of 3,856; 9,728; 3,978; 7,936.

Group **20.**

a. Subtract 500 from 2,731.
b. Find the difference between 362 and 9,200.
c. Add 629; 873; 5; 983; 296; 758; 395.
d. Find the sum of 6,273; 9,872; 3,296; 5,938.

Group **21.**

a. Subtract 84 from 902.
b. Find the difference between 6,001 and 302.
c. Add 298; 739; 24; 6; 902; 397.
d. Find the sum of 8,756; 9,273; 9,999; 3,824.

Group **22.**

a. Subtract 33 from 1,001.
b. Find the difference between 8,021 and 999.
c. Add 625; 3; 82; 967; 562; 321.
d. What is the sum of 6,259; 8,973; 2,695; 9,928?

Group **23.**

a. Subtract 49 from 2,002.
b. Find the difference between 2,300 and 127.
c. Add 9; 83; 462; 73; 85; 29; 9.
d. What is the sum of 6,273; 8,888; 9,673?

Group **24.**

a. Subtract 52 from 800.
b. Find the difference between 32 and 2,073.
c. Add 62; 98; 382; 596; 983; 752; 827.
d. Find the sum of 6,297; 8,392; 5,796; 9,873.

Group **25.**

a. Subtract 92 from 301.
b. Find the difference between 173 and 2,093.
c. Add 67; 483; 297; 92; 8; 495; 721.
d. Find the sum of 6,329; 7,854; 9,682; 7,397.

Group **26.**

a. Subtract 38 from 202.
b. Find the difference between 621 and 1,025.
c. Add 73; 29; 8; 963; 827; 992; 853.
d. Find the sum of 9,872; 8,596; 9,898; 8,492.

Group **27.**

a. Subtract 42 from 304.
b. Find the difference between 293 and 6,021.
c. Add 627; 983; 4; 8; 29; 820; 907.
d. Find the sum of 6,293; 7,968; 8,894; 8,293.

Group **28**.

a. Subtract 35 from 203.
b. Find the difference between 142 and 1,190.
c. Add 627; 998; 593; 72; 6; 55.
d. Find the sum of 8,296; 9,293; 4,927; 8,936.

Group **29**.

a. Subtract 42 from 701.
b. Find the difference between 1,062 and 924.
c. Add 623; 987; 59; 94; 9; 739; 852.
d. Find the sum of 6,296; 8,735; 9,273; 9,685.

Group **30**.

a. Subtract 72 from 103.
b. Find the difference between 1,080 and 624.
c. Add 963; 872; 99; 842; 693; 229.
d. Find the sum of 6,235; 8,297; 9,234; 9,875.

Group **31**.

a. Subtract 69 from 702.
b. Find the difference between 421 and 1,000.
c. Add 627; 93; 4; 98; 249; 6; 324.
d. Find the sum of 7,324; 9,685; 8,293; 7,998.

Group **32**.

a. Subtract 43 from 208.
b. Find the difference between 1,009 and 109.
c. Add 639; 284; 963; 273; 989; 927.
d. Find the sum of 6,297; 8,693; 4,975; 8,829.

Group **33.**

a. Subtract 38 from 206.

b. Find the difference between 1,081 and 296.

c. Add 624; 293; 249; 97; 900; 21.

d. Find the sum of 6,397; 4,879; 2,936; 7,859.

Group **34.**

a. Subtract 82 from 403.

b. Find the difference between 1,021 and 649.

c. Add 627; 983; 496; 809; 936; 542.

d. Find the sum of 1,693; 8,975; 2,983; 5,945.

Group **35.**

a. Subtract 39 from 601.

b. Find the difference between 2,030 and 384.

c. Add 697; 384; 29; 726; 998; 928.

d. Find the sum of 6,359; 9,826; 9,927; 5,938.

MULTIPLICATION DRILL EXAMPLES

(Continued from p. 94)

Group **7.**

a	*b*	*c*	*d*	*e*
820	735	209	936	3,216
×6	×7	×8	×9	×8

Group **8.**

a	*b*	*c*	*d*	*e*
731	834	908	574	3,240
×6	×7	×8	×9	×9

Group **9.**

a	*b*	*c*	*d*	*e*
725	436	735	186	6,027
×6	×7	×8	×9	×2

Group **10.**

a	*b*	*c*	*d*	*e*
609	812	700	923	1,469
×6	×7	×8	×9	×3

Group **11.**

a	*b*	*c*	*d*	*e*
729	826	901	738	9,682
×6	×7	×8	×9	×4

Group **12.**

a	*b*	*c*	*d*	*e*
666	708	291	582	2,265
×6	×7	×8	×9	×5

Group **13.**

a	*b*	*c*	*d*	*e*
384	285	219	563	6,209
×6	×7	×8	×9	×6

Group **14.**

a	*b*	*c*	*d*	*e*
290	734	930	832	1,826
×6	×7	×8	×9	×7

Group **15.**

a	*b*	*c*	*d*	*e*
826	824	361	192	4,092
×6	×7	×8	×9	×8

Group **16.**

a	*b*	*c*	*d*	*e*
824	932	468	739	3,208
×6	×7	×8	×9	×9

Group **17.**

a	*b*	*c*	*d*	*e*
709	396	492	629	4,097
×6	×7	×8	×9	×2

Group **18.**

a	*b*	*c*	*d*	*e*
496	329	527	310	9,870
×6	×7	×8	×9	×3

Group **19.**

a	*b*	*c*	*d*	*e*
729	831	927	382	4,196
×6	×7	×8	×9	×4

Group **20.**

a	*b*	*c*	*d*	*e*
904	719	298	467	6,715
×6	×7	×8	×9	×6

Group **21.**

a	*b*	*c*	*d*	*e*
297	309	579	905	7,162
×6	×7	×8	×9	×7

Group **22.**

a	*b*	*c*	*d*	*e*
789	661	269	177	4,078
×6	×7	×8	×9	×8

Group **23.**

a	*b*	*c*	*d*	*e*
275	908	601	581	6,207
×6	×7	×8	×9	×9

Group **24.**

a	*b*	*c*	*d*	*e*
809	801	973	604	8,329
×6	×7	×8	×9	×2

Group **25.**

a	*b*	*c*	*d*	*e*
593	931	362	721	8,419
×6	×7	×8	×9	×3

Group **26.**

a	*b*	*c*	*d*	*e*
368	776	508	572	1,793
×6	×7	×8	×9	×4

Group **27.**

a	*b*	*c*	*d*	*e*
492	462	762	707	8,513
×6	×7	×8	×9	×5

Group **28.**

a	*b*	*c*	*d*	*e*
960	754	457	560	8,517
×6	×7	×8	×9	×6

Group **29.**

a	*b*	*c*	*d*	*e*
249	892	635	293	7,150
×6	×7	×8	×9	×7

Group **30.**

a	*b*	*c*	*d*	*e*
246	298	972	384	3,924
×6	×7	×8	×9	×8

Group **31.**

a	*b*	*c*	*d*	*e*
706	492	306	774	1,568
×6	×7	×8	×9	×7

Group **32.**

a	*b*	*c*	*d*	*e*
917	608	513	602	6,290
×6	×7	×8	×9	×8

Group **33.**

a	*b*	*c*	*d*	*e*
375	197	762	473	6,300
×6	×7	×8	×9	×9

Group **34.**

a	*b*	*c*	*d*	*e*
734	580	532	206	7,293
×6	×7	×8	×9	×2

Group **35.**

a	*b*	*c*	*d*	*e*
290	368	708	538	7,124
×6	×7	×8	×9	×3

Group **36.**

a	*b*	*c*	*d*	*e*
467	245	921	392	4,739
×6	×7	×8	×9	×4

Group **37.**

a	*b*	*c*	*d*	*e*
903	758	629	348	6,238
×6	×7	×8	×9	×5

Group **38.**

a	*b*	*c*	*d*	*e*
607	935	267	638	9,214
×6	×7	×8	×9	×6

Group **39.**

a	*b*	*c*	*d*	*e*
329	119	207	794	2,086
×6	×7	×8	×9	×7

Group **40.**

a	*b*	*c*	*d*	*e*
732	750	832	709	7,061
×6	×7	×8	×9	×8

Group **41.**

a	*b*	*c*	*d*	*e*
714	319	596	293	5,738
×6	×7	×8	×9	×9

Group **42.**

a	*b*	*c*	*d*	*e*
628	726	427	346	2,096
×6	×7	×8	×9	×2

Group **43.**

a	*b*	*c*	*d*	*e*
721	928	718	293	5,678
×6	×7	×8	×9	×3

Group **44.**

a	*b*	*c*	*d*	*e*
394	723	498	607	2,097
×6	×7	×8	×9	×4

DIVISION DRILL EXAMPLES

(Continued from p. 105)

Group **8.**

a	*b*	*c*	*d*	*e*
2)206	2)96	3)615	4)756	5)2,065
f	*g*	*h*	*i*	*j*
6)4,386	7)5,838	8)7,395	9)5,166	9)29,160

Group **9.**

a	*b*	*c*	*d*	*e*
2)186	2)134	3)117	4)608	5)865
f	*g*	*h*	*i*	*j*
6)4,350	7)3,052	8)5,880	9)1,674	2)12,054

Group **10.**

a	*b*	*c*	*d*	*e*
2)108	2)196	3)105	4)1,080	5)425
f	*g*	*h*	*i*	*j*
6)3,656	7)5,684	8)5,600	9)8,307	3)4,407

Group **11.**

a	*b*	*c*	*d*	*e*
2)124	2)209	3)870	4)188	5)509
f	*g*	*h*	*i*	*j*
6)4,374	7)5,782	8)7,208	9)6,644	4)6,280

Group **12.**

a	*b*	*c*	*d*	*e*
2)264	2)132	3)738	4)344	5)840
f	*g*	*h*	*i*	*j*
6)3,996	7)4,956	8)2,328	9)5,238	5)1,325

Group **13.**

a	*b*	*c*	*d*	*e*
2)800	2)156	3)870	4)1,520	5)980
f	*g*	*h*	*i*	*j*
6)2,304	7)1,995	8)1,752	9)5,067	6)37,254

Group **14.**

a	*b*	*c*	*d*	*e*
2)184	2)700	3)501	4)260	5)770
f	*g*	*h*	*i*	*j*
6)1,740	7)5,138	8)7,440	9)7,488	7)12,782

Group **15.**

a	*b*	*c*	*d*	*e*
2)44	2)179	3)170	4)728	5)970
f	*g*	*h*	*i*	*j*
6)4,956	7)5,768	8)2,888	9)1,728	8)32,736

Group **16.**

a	*b*	*c*	*d*	*e*
2)680	2)90	3)288	4)114	5)4,905
f	*g*	*h*	*i*	*j*
6)4,944	7)6,524	8)3,744	9)6,642	9)28,872

Group **17.**

a	*b*	*c*	*d*	*e*
2)168	2)194	3)237	4)768	5)3,530
f 789	*g*	*h*	*i*	*j*
6)4,254	7)2,772	8)4,136	9)5,661	2)8,194

Group **18.**

a	*b*	*c*	*d*	*e*
2)162	2)980	3)810	4)351	5)1,525
f	*g*	*h*	*i*	*j*
6)2,976	7)2,303	8)4,216	9)2,796	3)29,610

Group **19.**

a	*b*	*c*	*d*	*e*
2)822	2)690	3)318	4)836	5)3,350
f	*g*	*h*	*i*	*j*
6)4,374	7)5,817	8)7,416	9)3,438	4)16,784

Group **20.**

a	*b*	*c*	*d*	*e*
2)408	2)118	3)693	4)500	5)4,215
f	*g*	*h*	*i*	*j*
6)5,424	7)5,033	8)2,384	9)4,203	6)40,290

Group **21.**

a	*b*	*c*	*d*	*e*
2)126	2)77	3)801	4)608	5)790
f	*g*	*h*	*i*	*j*
6)1,782	7)2,163	8)4,632	9)8,145	7)50,134

Group **22.**

a	*b*	*c*	*d*	*e*
2)606	2)70	3)921	4)760	5)2,670
f	*g*	*h*	*i*	*j*
6)4,734	7)4,627	8)2,152	9)1,593	8)32,656

Group **23.**

a	*b*	*c*	*d*	*e*
2)188	2)49	3)204	4)388	5)955
f	*g*	*h*	*i*	*j*
6)1,650	7)6,356	8)4,808	9)5,236	9)55,863

Group **24.**

a	*b*	*c*	*d*	*e*
2)160	2)138	3)285	4)376	5)850
f	*g*	*h*	*i*	*j*
6)4,854	7)5,609	8)7,784	9)5,436	2)16,658

Group **25.**

a	*b*	*c*	*d*	*e*
2)88	2)58	3)144	4)816	5)765
f	*g*	*h*	*i*	*j*
6)3,558	7)6,517	8)2,896	9)6,489	3)25,257

Group **26.**

a	*b*	*c*	*d*	*e*
2)100	2)306	3)164	4)116	5)880
f	*g*	*h*	*i*	*j*
6)2,208	7)5,432	8)4,064	9)5,148	4)7,172

Group **27.**

a	*b*	*c*	*d*	*e*
2)182	2)158	3)780	4)136	5)247
f	*g*	*h*	*i*	*j*
6)2,952	7)3,234	8)6,096	9)6,363	5)42,565

Group **28.**

a	*b*	*c*	*d*	*e*
2)248	2)92	3)177	4)720	5)2,450
f	*g*	*h*	*i*	*j*
6)5,760	7)5,278	8)3,656	9)5,040	6)51,102

Group **29.**

a	*b*	*c*	*d*	*e*
2)106	2)308	3)648	4)607	5)695
f	*g*	*h*	*i*	*j*
6)1,494	7)6,244	8)5,080	9)2,637	7)50,050

Group **30.**

a	*b*	*c*	*d*	*e*
2)180	2)416	3)918	4)472	5)2,175
f	*g*	*h*	*i*	*j*
6)1,476	7)2,086	8)7,776	9)3,456	8)31,392

Group **31.**

a	*b*	*c*	*d*	*e*
2)66	2)95	3)207	4)724	5)1,805
f	*g*	*h*	*i*	*j*
6)4,236	7)3,444	8)2,448	9)6,966	7)10,976

Group **32.**

a	*b*	*c*	*d*	*e*
2)48	2)98	3)147	4)268	5)4,350
f	*g*	*h*	*i*	*j*
6)5,502	7)4,256	8)4,104	9)5,418	8)50,320

Group **33.**

a	*b*	*c*	*d*	*e*
2)400	2)119	3)174	4)416	5)2,025
f	*g*	*h*	*i*	*j*
6)2,250	7)1,379	8)6,096	9)4,257	9)56,700

Group **34.**

a	*b*	*c*	*d*	*e*
2)208	2)38	3)750	4)280	5)1,760
f	*g*	*h*	*i*	*j*
6)4,404	7)4,060	8)4,256	9)1,854	2)14,586

Group **35.**

a	*b*	*c*	*d*	*e*
2)882	2)112	3)108	4)960	5)905
f	*g*	*h*	*i*	*j*
6)1,740	7)2,576	8)5,664	9)4,842	3)21,372

Group **36.**

a	*b*	*c*	*d*	*e*
2)840	2)178	3)717	4)148	5)740
f	*g*	*h*	*i*	*j*
6)2,790	7)1,715	8)7,368	9)3,528	4)18,956

Group **37.**

a	*b*	*c*	*d*	*e*
2)128	2)708	3)840	4)184	5)4,510
f	*g*	*h*	*i*	*j*
6)5,418	7)5,306	8)5,032	9)3,132	5)31,190

Group **38.**

a	*b*	*c*	*d*	*e*
2)186	2)816	3)795	4)772	5)3,045
f	*g*	*h*	*i*	*j*
6)3,642	7)6,545	8)2,136	9)5,742	6)55,284

Group **39.**

a	*b*	*c*	*d*	*e*
2)122	2)72	3)459	4)900	5)1,250
f	*g*	*h*	*i*	*j*
6)1,974	7)833	8)1,656	9)7,146	7)14,602

Group **40.**

a	*b*	*c*	*d*	*e*
2)406	2)192	3)228	4)988	5)1,695
f	*g*	*h*	*i*	*j*
6)4,392	7)5,250	8)6,656	9)6,381	8)56,488

Group **41.**

a	*b*	*c*	*d*	*e*
2)62	2)170	3)267	4)764	5)3,640
f	*g*	*h*	*i*	*j*
6)4,284	7)2,233	8)4,768	9)2,637	9)51,642

Group **42.**

a	*b*	*c*	*d*	*e*
2)802	2)99	3)141	4)428	5)4,000
f	*g*	*h*	*i*	*j*
6)3,768	7)5,082	8)3,416	9)3,114	2)4,192

Group **43.**

a	*b*	*c*	*d*	*e*
2)682	2)53	3)255	4)652	5)535
f	*g*	*h*	*i*	*j*
6)4,326	7)6,496	8)5,744	9)2,637	3)17,034

Group **44.**

a	*b*	*c*	*d*	*e*
2)808	2)152	3)291	4)832	5)1,035
f	*g*	*h*	*i*	*j*
6)2,364	7)5,061	8)3,984	9)5,463	4)8,388

PRACTICE GROUPS

(Continued from p. 112)

Group **10.**

a	*b*	*c*	*d*	*e*
2,130	627	759	483	9,783
−79	1,596	823	29	×6
	8,254	6,974	756	
	9,736	8,296	97	
	9,999	3,975	821	

Group **11.**

a	*b*	*c*	*d*	*e*
4,032	563	2,863	6,080	2,097
−96	29	4,972	4,973	×7
	8,257	5,386	2,867	
	368	2,697	4,326	
	49	3,942	7,985	

Group **12.**

a	*b*	*c*	*d*	*e*
2,057	785	275	200	6,947
−69	96	496	109	×8
	993	7,832	737	
	2,875	496	268	
	6,948	873	593	

Group **13.**

a	*b*	*c*	*d*	*e*
2,073	875	465	6,943	2,093
−93	3,695	26	2,845	×9
	4,827	98	6,293	
	3,694	384	8,725	
	2,857	729		

Group **14.**

a	*b*	*c*	*d*	*e*
6,020	8,295	8,297	2,973	6,974
−38	6,973	6,874	8,596	×7
	2,846	1,293	9,927	
	9,930	8,539	8,359	

Group **15.**

a	*b*	*c*	*d*	*e*
3,002	368	7,832	3,392	3,285
−74	8,597	999	78	×8
	283	8,462	6,857	
	7,694	6,739	5,296	
	6,286	9,278	834	

Group **16.**

a	*b*	*c*	*d*	*e*
2,987	753	536	9,682	2,967
−89	829	28	59	×9
	999	793	785	
	2,875	8,972	936	
	9,382	692	8,245	

Group **17.**

a	*b*	*c*	*d*	*e*
8,000	6,270	7,265	2,693	5,928
−79	983	9,683	489	×6
	4,627	697	9,273	
	329	5,830	8,096	

Group **18.**

a	*b*	*c*	*d*	*e*
3,010	3,265	8,326	2,875	8,509
−48	497	975	9,689	×7
	8,264	99	785	
	739	876	3,697	
	8,265	7,194	28	

Group **19.**

a	*b*	*c*	*d*	*e*
1,230	2,869	749	9,286	8,695
−63	753	99	499	×8
	9,827	834	72	
	69	1,968	8,269	
	8,326	7,285		

DRILL EXAMPLES: TWO-FIGURE MULTIPLIER

(Continued from p. 120)

Group **14.**

a	*b*	*c*
948	278	257
×34	×69	×200

Group **15.**

a	*b*	*c*
975	2,873	296
×34	×65	×80

Group **16.**

a	*b*	*c*
859	7,879	219
×39	×26	×400

Group **17.**

a	*b*	*c*
496	7,325	290
×38	×52	×90

Group **18.**

a	*b*	*c*
736	8,579	309
×26	×37	×50

Group **19.**

a	*b*	*c*
976	1,693	209
×34	×26	×80

Group **20.**

a	*b*	*c*
695	6,982	936
×24	×56	×30

Group **21.**

a	*b*	*c*
675	8,932	735
×24	×58	×70

Group **22.**

a	*b*	*c*
693	6,275	834
×35	×26	×70

Group **23.**

a	*b*	*c*
296	7,936	693
×24	×39	×50

Group **24.**

a	*b*	*c*
983	6,293	457
×45	×38	×200

Group **25.**

a	*b*	*c*
579	6,938	413
×23	×74	×50

Group **26.**

a	*b*	*c*
736	6,829	389
×24	×58	×30

Group **27.**

a	*b*	*c*
973	2,839	413
×36	×47	×60

Group **28.**

a	*b*	*c*
849	6,293	923
×13	×45	×90

Group **29.**

a	*b*	*c*
698	4,987	700
×25	×37	×80

Group **30.**

a	*b*	*c*
687	4,839	805
×32	×46	×50

Group **31.**

a	*b*	*c*
685	7,396	729
×24	×53	×60

Group **32.**

a	*b*	*c*
369	8,356	264
×14	×67	×200

Group **33.**

a	*b*	*c*
829	3,854	666
×35	×48	×60

Group **34.**

a	*b*	*c*
698	8,492	291
×26	×37	×80

Group **35.**

a	*b*	*c*
736	6,739	582
×24	×49	×60

Group **36.**

a	*b*	*c*
698	7,296	168
×34	×57	×500

Group **37.**

a	*b*	*c*
869	7,269	582
×35	×48	×90

Group **38.**

a	*b*	*c*
698	2,396	291
×24	×37	×80

Group **39.**

a	*b*	*c*
978	9,398	380
×32	×66	×40

Group **40.**

a	*b*	*c*
985	9,362	219
×25	×36	×80

Group **41.**

a	*b*	*c*
694	6,984	154
×32	×48	×500

LONG DIVISION DRILL EXAMPLES

(Continued from p. 190)

Group **12.**

a	*b*	*c*	*d*	*e*
33)429	93)30,884	52)41,912	59)41,654	336)116,592

Group **13.**

a	*b*	*c*	*d*	*e*
31)713	54)50,849	54)113,130	29)12,180	235)119,615

Group **14.**

a	*b*	*c*	*d*	*e*
31)675	43)1,899	73)65,919	25)73,825	586)144,742

Group **15.**

a	*b*	*c*	*d*	*e*
41)902	74)6,906	36)10,800	56)20,048	256)73,216

Group **16.**

a	*b*	*c*	*d*	*e*
21)721	75)6,275	90)87,120	64)24,064	923)558,415

Group **17.**

a	*b*	*c*	*d*	*e*
32)696	52)2,964	34)44,268	36)6,480	843)293,364

Group **18.**

a	*b*	*c*	*d*	*e*
52)576	84)4,509	35)10,780	45)17,595	312)67,080

Group **19.**

a	*b*	*c*	*d*	*e*
32)708	52)4,499	46)4,830	45)7,335	243)73,386

Group **20.**

a	*b*	*c*	*d*	*e*
22)902	42)3,990	44)9,020	37)10,360	520)291,200

Group **21.**

a	*b*	*c*	*d*	*e*
21)462	35)10,998	33)6,831	36)29,520	125)21,875

Group **22.**

a	*b*	*c*	*d*	*e*
21)483	36)1,116	47)66,129	25)8,975	218)43,164

Group **23.**

a	*b*	*c*	*d*	*e*
32)400	64)20,544	81)56,943	58)10,672	215)46,225

Group **24.**

a	*b*	*c*	*d*	*e*
81)898	85)28,985	82)58,056	38)29,640	426)86,478

Group **25.**

a	*b*	*c*	*d*	*e*
51)663	35)1,155	72)7,488	84)40,320	913)576,103

Group **26.**

a	*b*	*c*	*d*	*e*
72)7,992	84)3,864	74)8,066	24)7,008	345)72,105

Group **27.**

a	*b*	*c*	*d*	*e*
21)882	43)31,992	46)6,440	25)8,675	572)208,780

Group **28.**

a	*b*	*c*	*d*	*e*
21)6,602	73)40,442	36)47,016	36)9,576	468)152,100

Group **29.**

a	*b*	*c*	*d*	*e*
61)689	65)3,428	32)19,456	56)10,304	243)154,305

Group **30.**

a	*b*	*c*	*d*	*e*
31)713	65)29,575	63)12,915	26)11,700	394)81,952

Group **31.**

a	*b*	*c*	*d*	*e*
42)966	54)2,862	35)10,850	37)9,651	326)89,650

Group **32.**

a	*b*	*c*	*d*	*e*
31)969	51)42,636	73)175,711	27)13,392	345)91,080

Group **33.**

a	*b*	*c*	*d*	*e*
31)979	71)66,598	76)7,980	38)14,668	234)76,050

Group **34.**

a	*b*	*c*	*d*	*e*
31)651	73)6,132	57)11,685	37)10,508	209)63,954

Group **35.**

a	*b*	*c*	*d*	*e*
44)968	44)3,168	75)15,450	27)8,694	249)76,194

Group **36.**

a	*b*	*c*	*d*	*e*
22)719	63)2,646	36)10,872	29)8,903	236)81,420

Group **37.**

a	*b*	*c*	*d*	*e*
35)7,398	42)13,944	36)54,000	19)4,978	324)137,700

Group **38.**

a	*b*	*c*	*d*	*e*
25)7,875	94)5,828	44)13,508	85)26,945	246)79,704